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REPORTS

FROM

COMMISSIONERS:

TWENTY-NINE VOLUMES.

—(16.)—

NATIONAL GALLERY; NATIONAL PORTRAIT GALLERY; ~~ROYAL SOCIETY (METEOROLOGICAL COMMITTEE)~~; STANDARDS; ~~WEIGHTS AND MEASURES.~~

Session

8 *February* —— 10 *August* 1870.

VOL. XXVII.

1870.

REPORTS FROM COMMISSIONERS:

1870.

TWENTY-NINE VOLUMES:—CONTENTS OF THE

SIXTEENTH VOLUME.

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RETURN to an Order of the Honourable The House of Commons, dated 10 February 1870;—*for*,

COPY "of ANNUAL REPORT of the DIRECTOR of the NATIONAL GALLERY to the LORDS of the TREASURY, for the Year ended the 31st day of December 1869."

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REPORT.

National Gallery,
January 1870.

My Lords,

I HAVE the honour to submit to your Lordships the following Report on the National Gallery for the year ending the 31st December 1869.

The present Trustees are, in the order of their nomination,—

The Lord Overstone.	The Marquis of Northampton.
William Russell, Esq.	Austen Henry Layard, Esq.
Thomas Baring, Esq.	William Henry Gregory, Esq.

The subjects of the present Report are:—

I. Pictures purchased during the year.

II. Former Purchases.

III. Bequests and Donations.

IV. Loans.

V. Details relating to the Gallery and Establishment.

I.—PICTURES purchased during the year 1869.

1. A picture by John Martin, of the "Destruction of Pompeii," bought in London, in January.

2. "The Court-yard of a Dutch House," by Peter de Hooge, purchased in Paris, in March.

3. A "Flower Piece," by Jan Van Huysum, purchased in London in April.

4. A "Man's Portrait," by Albert Cuyp, bought at the same time.

5. An altar-piece by Marco Marziale, a rare Venetian master, purchased, together with the two following pictures, in the month of September, in Milan.

6. "The Madonna and Child Enthroned," another altar-piece, by Marco Marziale and,—

7. A "Madonna and Child," by Bartolommeo Montagna.

For details relating to the above pictures, *see* Appendix, No. 1.

II. Former Purchases.

1. No. 778, an altar-piece, by Pellegrino da San Daniele, described in the Report for 1867, p. 4; was placed in the Gallery in April 1869.

2. No. 788, the large altar-piece, by Carlo Crivelli, described in p. 4 of the last Report; was placed in the Gallery in the same month.

3. No. 790, the "Entombment," by Michelangelo, described in the last Report, pp. 4 and 5, was also placed in the Gallery in the month of April, on the acquisition of the rooms formerly occupied by the Royal Academy.

III.—Bequests and Donations.

1. *George Cruikshank.*—"The Worship of Bacchus, or the Drinking Customs of Society, from the Cradle to the Grave." Painted in 1862, in oil, on canvas, 7 ft. 8 in. high, by 12 ft. 3 in. wide. Presented in the month of April 1869, by Mr. R. E. Lofft, and other friends of the painter. Hung in the gallery at South Kensington in May; numbered 795.

2. *Philippe de Champaigne* (1602-74), Flemish School.—"Three portraits of Cardinal de Richelieu," a full face and two profiles on the same canvas.* In oil, on canvas, 1 ft. 11 in. high, by 2 ft. 4⅛ in. wide. Presented by Mr. A. W. Franks, in June, hung in the Gallery in the month following; numbered 798. Protected with glass.

3. *Benjamin West*, P.R.A. (1738–1820). "Portrait of a Lady as Hebe." Painted in oil, on canvas, 4 ft. 2 in. high, by 3 ft. 3½ in. wide. Bequeathed by her daughter, Miss Harriet Worrell, in June 1869; hung in the gallery at South Kensington, in the following month; numbered 799.

4. *George Jones*, R.A. (1786–1869).—"The Relief of Lucknow, November 1857." Painted in oil, on canvas, 3 ft. 7 in. high by 6 ft. 10 in. wide; numbered 800.

5. *George Jones*, R.A.—"The Passage of the Ganges, Cawnpore, November 1857." Painted in oil, on canvas, 3 ft. 7 in. high, by 6 ft. 10 in. wide; numbered 801.

Both pictures were exhibited at the Royal Academy in 1869, and were presented to the National Gallery, by the painter, in August, six weeks only before his death. Hung in the gallery at South Kensington, in the month of October following.

The "Baillie Family," by Gainsborough, No. 789; the "Woodman," by Thomas Barker, No. 792; and the "Nun," by H. W. Pickersgill, R.A., No. 791; all described in the last Report, p. 2, have since been placed in the Gallery; the first, in April, in Trafalgar Square, and the other two in April and May, at South Kensington.

IV.—Loans.

1. A request from this Board to the Dilettanti Society, for the loan, on the behalf of the Public, of the two magnificent pictures by Sir Joshua Reynolds, of portraits of former members of that Society, was courteously received. And at a meeting of the members held on the 4th of July last, the Society expressed, through its Honorary Secretary, Sir Edmund Ryan, its cordial acquiescence "with the views of the Trustees that the Public should have the instruction and pleasure which would be derived from the exhibition of these pictures for a limited time."

The pictures have been accordingly lent to the Trustees of the National Gallery, for exhibition to the Public, from the 1st of August 1869 until the 31st of January 1870.

There being no other available space in the Gallery at Trafalgar Square, Mr. James Ward's large picture of Alderney Cattle, in the West Room, has been temporarily screened off, and the two portrait groups, by Sir Joshua Reynolds, hung in the space so procured.

The first picture, the group on the spectator's left, contains the portraits of Sir Watkin W. Wynne, Sir J. Taylor, Mr. Payne Galway, Mr. Richard Thompson, Mr. Stanhope, and Mr. Smyth of Heath.

The second picture, on the right, contains the portraits of Lord Mulgrave, Lord Dundas, the Earl of Seaforth, Hon. Charles Greville, the Duke of Leeds, Charles Crowle, Esq., and Sir Joseph Banks.

Painted in oil, on canvas, each 6 ft. 6 in. high, by 5 ft. 1 in. wide, under glass. They were on public exhibition in the Gallery on the 31st of July.

2. In accordance with your Lordship's sanction, as expressed in Mr. Law's letter of the 22nd of June 1869, conditions of loan of some of the Turner sketches to Provincial Museums, have been adopted by this Board, and have been acceded to by the local authorities as regards the three small selections of the sketches which have been prepared for exhibition in the provinces.

Collections have been borrowed for one year by the National Galleries of Ireland and Scotland, and by the Mechanic's Institution of Leeds.

The

* On the back of the picture is written:—"Ritratto del Cardinale di Richelieu, di Monsu Sciampagna da Brusselles. Lo fece in Parigi per Roma, al Statuario Mocchi, quale poi fece la statua e la mando a Parigi." Over the profile, on the spectator's right, are the words—"*De ces deux profiles ce cy est le meilleur.*"

The sketches are mounted, glazed and framed; were packed in cases lined with India-rubber bands, and arrived safely at their destination, in the month of July last.

1. The Dublin collection, consists of sixty-four sketches, in fifty-three frames.
2. The Edinburgh collection, consists of sixty-two sketches, in fifty-three frames.
3. The Leeds collection, consists of seventy sketches, in fifty-eight frames.

For details respecting these several collections, *see* Appendix, No. 2.

V.—Details relating to the Gallery and Establishment.

Pictures cleaned or repaired.

No. 366. "Female Bathers," by Etty, having become much disfigured by cracks, was repaired in the month of March.

Pictures protected with Glass.

During the year 1869, twelve pictures have been protected with glass, comprising three recently acquired. Appendix, No. 3.

Number of Visitors to the National Gallery.

The collections at Trafalgar-square and at South Kensington (assuming that all the visitors to the Museum visited the Picture Gallery) have been attended by 1,804,892 persons, on the public days during the year 1869; 761,238 at Trafalgar-square, and 1,043,654 at South Kensington.

The Gallery in Trafalgar-square was, owing to the re-arrangement of the collection, in consequence of the acquisition of the rooms lately occupied by the Royal Academy, open for nine months only during the year; yet the total numbers exceed those of 1868. The daily average in 1869 was 4,911, while that of 1868 was 3,840 only. For details on this subject, *see* the Appendix, No. 4.

The particulars relating to copying in the Galleries and the number of Catalogues sold, will be found in the Appendix, Nos. 5 and 6.

Details relating to the Establishment.

The President and Council of the Royal Academy gave up the Exhibition Rooms of the Eastern portion of the building occupied by them, to the First Commissioner of Works on the 8th of February last, retaining still the lower rooms; and the refitting the exhibition rooms for the purposes of the National Gallery was commenced on that day. On the 1st of March, the Gallery was closed to the Public, and the re-arrangement of the pictures, in accordance with a general scheme approved at the meeting of the Board on the 18th of January, was commenced.

In the large West Room a selection of the works of deceased masters of the British School, from South Kensington, has been arranged. The two next rooms have been devoted to "Turner's Gallery," his earlier being now separated from his later works.

The Italian pictures arranged in a general chronological order, extending over three centuries (the 14th, 15th and 16th), occupy the five central rooms of the building. The latest Italian pictures, those of the 17th century, together with the Spanish pictures of the same period, occupy the next room, the former "West Room" of the Royal Academy. In the former "Middle Room" of the Academy are the French pictures, and, owing to want of space elsewhere, some of the earliest Flemish, Dutch and German pictures; other early Flemish and German works are placed in the "Octagon Room."

The remaining Dutch and Flemish pictures of the Collection occupy the great "East Room" of the building, of which the lighting has been much improved by the addition of six square openings in the roof of the lantern.

The number of works now exhibited to the public in Trafalgar-square is, exclusive of the sculpture, 530, and these are distributed in twelve rooms and the Entrance Hall.

The pictures were all hung by the 17th of April, and all arrangements completed by the 23rd. The Gallery was re-opened to the Public on Monday, the 26th, when the Collection was viewed by 11,749 visitors.

As precautions against fire, a large tank has been placed on the roof of the Academy side, with two fire mains reaching to the basement, with buckets and hose complete, and a watch is set all night in the Gallery and on the basement.

Owing to the enlarged space accruing from the acquisition of the Academy rooms, additional attendance was deemed necessary; this has been met by the removal to Trafalgar-square of one curator and one assistant porter from South Kensington, and by the appointment by the Treasury of two additional police constables, and a fourth assistant housemaid. (By Treasury letters, dated March the 17th and April the 12th, 1869.)

On the 7th of January 1869, Benjamin Beeston was appointed by the Treasury assistant porter at South Kensington, in the room of Archibald Archer, promoted; and, on the 22nd of February 1869, Joseph Reuben Ashley was appointed assistant porter and stoker at Trafalgar-square, in the room of John Dixon, promoted.

The general account relating to the establishment is, by direction of the Lords Commissioners of the Treasury, sent in by the keeper and secretary, monthly and annually, to the Exchequer and Audit Department, Somerset House.

I have, &c.
(signed) *W. Boxall.*

To the Lords Commissioners of
Her Majesty's Treasury.

APPENDIX.

Appendix, No. 1.

DETAILS respecting PICTURES purchased for the NATIONAL GALLERY during the Year ending 31st December 1869.

I. *John Martin* (1789-1854).—"The Destruction of Pompeii and Herculaneum," by an eruption of Mount Vesuvius, in the year 79; as seen from Stabiæ or Castell' a Mare. Painted in 1822, in oil, on canvas, 5 ft. 4 in. high, by 8 ft. 3 in. wide. Formerly in the collection of the Duke of Buckingham, at Stowe. Purchased from Mr. C. Buttery, in January 1869, for 200 *l.* Placed in the Gallery at South Kensington in the month of April; numbered 793.

II. *Pieter De Hooge* (1665).—"The Courtyard of a Dutch House." The housewife, with her back to the spectator, is speaking to a servant, who is stooping, in the act of dishing a fish. Signed and dated, P. D. H. 1665. Painted in oil, on wood, 2 ft. 5 in. high, by 2 ft. $\frac{1}{2}$ in. wide. Formerly in the collection of Count Perregaux. Purchased in Paris, at the Delessert sale in March 1869, for 1,722 *l.* Placed in the Gallery in April; numbered 794. Protected with glass.

III. *Jan Van Huysum* (1682–1749).—"A Marble Vase with Flowers"; on the pedestal various fruits, a greenfinch's nest with eggs, &c. Signed and dated, *Jan Van Huÿsum fecit* 1736 *en* 1737. Painted in oil, on canvas, 4 ft. 4$\frac{1}{2}$ in. high by 3 ft. $\frac{1}{4}$ in. wide, with an arched top. Formerly in the collection of Mr. Wells, of Readleaf. Purchased from Mr. C. J. Nieuwenhuys, in April 1869, for 900 *l.*; protected with glass, and placed in the Gallery in May; numbered 796.

IV. *Albert Cuyp* (1605-91).—"Portrait of a Man," with a small skull-cap; bust. Signed and dated, *aetatis* 56, 1649—*A. Cuyp fecit.* Painted in oil, on wood, 2 ft. 3 in. high by 1 ft. 11$\frac{1}{2}$ in. wide. Formerly in the collections of Mr. Michael Bryan and Mr. Bulkeley Owen. Purchased from Mr. C. J. Nieuwenhuys, in April 1869, for 900 *l.*; placed in the Gallery in May; numbered 797.

V. *Bartolomeo Montagna.* (Painting 1499–1507). Venetian School.—"Madonna and Child." Painted in oil, on wood, 2 ft. 1 in. high by 1 ft. 9$\frac{1}{2}$ in. wide. Formerly in the collection of Count Carlo Castelbarco, Milan. Purchased at Milan from Signor Giuseppe Baslini, in September 1869, for 180 *l.* 18 *s.* Not yet exhibited.

VI. *Marco Marziale.* (Painting 1499-1507.) Venetian School.—"The Circumcision," a composition of fourteen figures, half the scale of life. The scene is a vaulted chapel, the roof of which is richly decorated with mosaics, on a gold ground. Painted in tempera on canvas, 7 ft. 4 in. high, by 5 ft. wide. It is marked with the painter's monogram, a capital M crossed by an horizontal bar, and above it a double cross, and bears the following legend in a cartellino or label:—

MARCVS MARTIALIS VENE
TVS IVSSV MCI EQVITIS
ET IVRCON· D· THOME
R. OPVS HOC· P· AN.
MºCCCCCº

From which we learn that the work was commissioned by the Signor Tommaso R., knight and lawyer, of the noble family of Raimondi of Cremona. When completed in the year 1500, it was placed over the principal altar of the Church of San Silvestro, in Cremona, and is described by Panni, in his account of the pictures of that city,* as being still in its place in 1762. It is considered the chief work of the master.

On occasion of the suppression of the Church of San Silvestro at the close of the last century, the picture was removed by the Marquis Picenardi, a distinguished amateur of Cremona, and placed in his castle of Torre de' Malamberti, near Piadena, in the province of Cremona, where it remained until 1868. Purchased from Signor Giuseppe Baslini, at Milan, in September 1869, for 1,005 *l.* Not yet exhibited.†

VII. *Marco Marziale.* (Painting 1499-1507.)—Venetian School. "The Madonna and Child enthroned, with various Saints," St. John the Baptist, San Gallo Abate, San Jacopo di Compostella, and St. Andrew: An Angel playing a guitar on the steps of the throne. Signed,

MARCVS MARCIALIS VENETVS P.
M.D.VII.

Painted in oil, on wood, 7 ft. 2$\frac{1}{2}$ in. high, by 4 ft. 7$\frac{1}{2}$ in. wide.

Formerly over the principal altar of the Church of San Gallo in Cremona,‡ subsequently in the collection of the Marquis Picenardi, as noticed above. Purchased in Milan, in September 1869, from Signor Giuseppe Baslini, for 502 *l.* 10 *s.* Not yet exhibited.

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* "Distinto Rapporto delle dipinture che trovansi nelle Chiese della Città, e sobborghi di Cremona." Crem. 1762.—"All' Altar Maggiore avvi un quadro, dov' è dipinta la Circoncisione di Nostro Signore, con molte figure d' Uomini, e di Donne, vestite su la maniera d' *Alberto Duro.* Opera di *Marco Marziale* Veneziano dell' anno 1500, fatta a spese de' Nobili Signori Raimondi, abitanti in questa Parrochia."—p. 145.

† In the conservatorio attached to the Church of Santa Maria delle Penitenti, San Giobbe, in Venice, is a small oil picture of the upper half of the centre group of the above-described "Circumcision," signed, "PINXIT HOC OPUS MARCUS MARCIALIS VENETUS. ANNO M.CCCC. LXXXX VIIII."

The works of Marziale are extremely rare. In the "Pinacoteca Contarini," in the Accademia di Belle Arti at Venice, is a "Supper at Emmaus," by him, signed and dated 1506.

‡ Panni, *l. c.*, p. 124.

Appendix, No. 2.

LISTS of the TURNER SKETCHES lent for a limited time to PROVINCIAL MUSEUMS.

1.—*National Gallery of Ireland, Dublin.*

Sight Measure of Frames.	Number.	Subject.	Method.
13 × 9½ inches	1	Gothic Tower	Lead pencil.
" "	4	Ship's Hull	ditto.
" "	7	Landscape	ditto.
" "	10	Loch Lomond	Colour.
" "	13	Norham Village and Castle	ditto.
" "	16	Street, with Church	ditto.
" "	19	Town in Normandy	Chalk, on brown.
" "	22	River Scene	Colour, on blue.
" "	25	Landscape	Colour, on brown.
" "	28	Academy Study, Male	- ditto.
" "	31	Coast Scene	Colour.
" "	34	Castle	ditto.
15 × 12 inches	37	Worcester Cathedral	Pencil.
" "	40	Norman Ruin	ditto.
" "	43	Harlech Castle	ditto.
" "	46	Old Oak	ditto.
" "	49	Pic-nic Party (Turner)	ditto.
" "	52	River Scene	Pen and Ink.
" "	55	Two Sketches of Wrecks	- ditto.
" "	58	Landscape	Pen, on blue.
" "	61	Battle Abbey	Colour.
" "	64	Ship's Hull and Boats	ditto.
" "	67	House Gable	ditto.
" "	70	River Scene	ditto.
" "	73	Ditto	ditto.
" "	76	Lake Scene	Tint.
" "	79	Mountain Scene	Sepia.
" "	82	Storm at Sea	Brown, on white.
" "	85	Study of Fish	Colour.
" "	88	The Righi, Lake of Lucerne	ditto.
" "	91	Study of Sky	ditto.
" "	94	The Piazzetta, Venice	ditto.
" "	97	St. Mark's, Venice	Colour, on brown.
" "	100	Campanile of St. Mark's, ditto	- ditto.
" "	103	Moonlight, Venice	- ditto.
" "	106	River Scene, Sunset	Colour, on gray.
" "	109	Two Mountain Scenes, with Fortress	- ditto.
" "	112	Two Views on the Seine	Colour, on blue.
" "	115	Two Church Interiors	- ditto.
22 × 15 inches	121	Five Studies, Bruges, Lausanne, &c.	Pencil.
" "	124	Four Studies, Naples	ditto.
" "	127	Fonthill	ditto.
" "	130	Yorkshire	ditto.
" "	133	Park Scene	ditto.
" "	136	Dover	Tint.
" "	139	Moonlight	Sepia.
" "	142	Highland River	Pencil, on brown.
" "	145	The Needles	Colour.
" "	148	Woody Landscape	ditto.
" "	151	The Thames	ditto.
" "	154	Highland Scene	ditto.
" "	157	Alpine Scene	ditto.
" "	160	Gothic Ruin, Sunset	ditto.

LISTS of the Turner Sketches lent for a limited time to Provincial Museums—*continued.*

2.—*National Gallery of Scotland, Edinburgh.*

Sight Measure of Frames.	Number.	SUBJECT.	Method.
13 × 9½ inches	2	Gothic Interior	Lead Pencil.
" "	5	Ship's Hull	- ditto.
" "	8	Sheep	- ditto.
" "	11	Mountainous Landscape	Colour.
" "	14	Moonlight	ditto.
" "	17	Avranches	Chalk on Brown.
" "	20	Mountains	Pencil on Brown.
" "	23	River Scene	Colour on Blue.
" "	26	Landscape	Colour on Brown.
" "	29	Sunset	Colour.
" "	32	Harbour Scene	ditto.
" "	35	Pines	ditto.
15 × 12 inches	38	Ely Cathedral	Pencil and Colour.
" "	41	Brougham Castle	Pencil
" "	44	Conway Castle	ditto.
" "	47	Rome	ditto.
" "	50	Harvest	Pen and Ink.
" "	53	River Scene	- ditto.
" "	56	Gothic Exterior	Pen on Blue.
" "	59	The Avon near Bristol	Colour.
" "	62	Battersea on Thames	ditto.
" "	65	Gothic Interior	ditto.
" "	68	Convent	ditto.
" "	71	Sea Piece	ditto.
" "	74	Trees	Tint.
" "	77	Bridge and Waterfall	ditto.
" "	80	Moonlight	Black and White.
" "	83	Sky and Sea	Colour.
" "	86	Mountain Scene	ditto.
" "	89	Lake Scene	ditto.
" "	92	Study of Sky	ditto.
" "	95	Grand Canal, Venice	ditto.
" "	98	Ducal Palace, ditto	Colour on Brown.
" "	101	Giants' Staircase, ditto	- ditto.
" "	104	City on Fire	- ditto.
" "	107	River Scene	Colour on Grey.
" "	110	The Campo Vaccino, and the Colosseum, Rome	- ditto.
" "	113	Two Views in France	Colour on Blue.
" "	116	Two Mountain Scenes	- ditto.
22 × 15 inches	122	Four Studies, Rome and Tivoli	Pencil.
" "	125	Ditto - North Italy	ditto.
" "	128	Durham	ditto.
" "	131	Landscape, Yorkshire	ditto.
" "	134	Folly Hill ditto	Pencil and Colour.
" "	137	Lago Maggiore, Italy	Tint.
" "	140	Marsh Mallow	Chalk.
" "	143	Pembroke	Colour.
" "	146	River Scene	ditto.
" "	149	Fonthill	ditto.
" "	152	The Thames	ditto.
" "	155	Scotch Lake	ditto.
" "	158	Nemi	ditto.
" "	161	A Tower, Sunset	ditto.

LISTS of the Turner Sketches lent for a limited time to Provincial Museums—*continued.*

3.—*The Mechanics' Institute, Leeds.*

Sight Measure of Frames.	Number.	SUBJECT.	Method.
13 × 9½ inches	3	Christchurch Gate, Canterbury	Lead Pencil.
" "	6	Deck of a Ship	- ditto.
" "	9	Gothic Interior	Pencil and Colour.
" "	12	Berwick-on-Tweed	Colour.
" "	15	Mountain Village	ditto.
" "	18	Town in Normandy	Pencil & Chalk on Brown.
" "	21	Mountains	- ditto - Blue.
" "	24	Sea Piece	Colour on Blue.
" "	27	Figure Sketch	ditto - on Brown.
" "	30	Coast Scene	Colour.
" "	33	Bridge	ditto.
" "	36	Vignette Landscape	ditto.
15 × 12 inches	39	A Street	Pencil.
" "	42	Rheinfelden	ditto.
" "	45	Conway Castle	ditto.
" "	48	Naples	ditto.
" "	51	Harvest	Pen and Ink.
" "	54	Two Sketches of Shipping	- ditto.
" "	57	Gothic Exterior	Pen on Blue.
" "	60	Oxford	Colour.
" "	63	Cows	ditto
" "	66	Old London Bridge, &c.	ditto
" "	69	Gothic Window	ditto
" "	72	Ditto Archway	ditto
" "	75	Mountain Torrent	Tint.
" "	78	Ditto Scene	Sepia.
" "	81	Bligh Sand, Thames	Brown on White.
" "	84	Study of Trees (Turner)	Colour.
" "	87	Naples	ditto.
" "	90	Mountain Scene	ditto.
" "	93	Venice	ditto.
" "	96	Ditto (from Turner's Bedroom Window)	ditto.
" "	99	Ditto Ducal Palace	Colour on Brown.
" "	102	Ditto Sta. Maria della Salute	- ditto.
" "	105	Academy Figure, Female	- ditto.
" "	108	River Scene	Colour on Gray.
" "	111	Two Figure compositions	- ditto.
" "	114	Two Sketches, River Boats	Colour on Blue.
" "	117	A Coast Vignette	- ditto.
" "	118	Two Views, Brighton and Petworth	- ditto.
" "	119	Ditto Petworth Park	- ditto.
" "	120	Ditto ditto Interior	- ditto.
22 × 15 inches	123	Four Studies, Cattle and Horses	Pencil.
" "	126	Ditto - Italy	ditto.
" "	129	Caerphilly Castle	ditto.
" "	132	Cashiobury	ditto.
" "	135	Dartmouth	Pencil and Colour.
" "	138	Naples	Tint.
" "	141	Kilchurn Castle	Pencil on Brown.
" "	144	Warwick	Colour.
" "	147	Lake Scene	ditto.
" "	150	On the Thames, Kew	ditto.
" "	153	Highland Bridge	ditto.
" "	156	Scotch Lake	ditto.
" "	159	Baiae	ditto.
" "	162	A Bridge, Sunset	ditto.
" "	163	Windmill with Cattle, a Mist	ditto.
" "	164	Sunset	ditto.

Appendix, No. 3.

LIST of PICTURES which have been Protected with GLASS during the Year ending 31st December 1869.

DATE.	PAINTER.	SUBJECT.	Number in Catalogue.
March	Etty	Female Bathers	366
April	P. D. Hooge	Dutch House-court	794
May	J. Van Huysum	Flowers and Fruit	796
October	G. B. Moroni	Portrait of a Tailor	697
„	Murillo	Peasant Boy	74
„	Teniers	Players at Tric-Trac	242
„	Rottenhammer	Pan and Syrinx	659
„	P. De Champaigne	Cardinal De Richelieu	798
„	Claude	Study of Trees	58
„	Turner	Clapham Common	464
„	„	Agrippina	523
„	Leslie	Uncle Toby and the Widow	403

Total Number during the Year - - - - - 12.

At the close of the year 1869, the total number of exhibited works of Foreign Schools protected with glass, was 138, including three cartoons and one tracing; of the British School, 99 pictures, and 202 frames of drawings and sketches. Total, 439.

Appendix, No. 4.

NUMBER of VISITORS to the NATIONAL GALLERY during the Year ending 31st December 1869.

Month.	Trafalgar Square.*	South Kensington.†
January	65,547	103,721
February	62,937	76,239
March	Closed	109,197
April	29,454‡	85,587
May	135,121	100,339
June	76,805	77,707
July	77,329	92,337
August	98,609	106,827
September	70,126	77,356
October	Closed	73,508
November	77,327	59,269
December	67,983	81,567
TOTAL	761,238	1,043,654

TOTAL for the Year - - - 1,804,892

Daily average at Trafalgar Square - - 4,911

* Open to the public four days in the week.

† Open to the public six days and three evenings. The returns are those of the whole Museum, there being no means of ascertaining the exact numbers visiting the National Gallery rooms.

‡ Open to the public four days only.

Appendix, No. 5.

DETAILS relating to COPYING in the GALLERY.

Number of attendances during the year 1869:

Trafalgar Square	5,680 (in 79 days).
South Kensington	9,151 (in 149 days).

Number of Students in Oil Painting during the same period:

Entered in the books	714

Daily average attendance:

Trafalgar Square	39
South Kensington	35

Number of Students in Water Colours during the same period:

New Students entered in the books	323

Daily average attendance:

Trafalgar Square	28
South Kensington	27

RETURN of PICTURES Copied in Oil during the Year.

Foreign Schools.			*British School.*		
Number of Copies.	Number of Pictures Copied.	Number of Masters.	Number of Copies.	Number of Pictures Copied.	Number of Masters.
121	52	30	190	80	30

PICTURES most frequently Copied during the Year.

Foreign or Old Masters.

PAINTER.	SUBJECT.	Number in Gallery.	Times Copied.
Vandyck	Portrait of a Gentleman (C. Vander Geest)	52	9
Velazquez	Philip IV. of Spain	745	9
Andrea Del Sarto	His own Portrait	690	6
Guido	"Ecce Homo"	271	5
Murillo	Peasant Boy	74	5
Greuze	Head of a Girl	206	5
Raphael	Madonna and Child, and St. John	744	4
Correggio	"Ecce Homo"	15	4
Guido	Jesus Christ and St. John	191	4
Sassoferrato	Madonna in Prayer	200	4
Rembrandt	His own Portrait	672	4
Ditto	Portrait of an old Lady	775	4
Murillo	St. John and the Lamb	176	4
Giorgione	Knight in Armour	269	3
Guercino	Dead Christ, with Angels	22	3

PICTURES most frequently Copied during the Year—*continued.*

Modern Masters.

PAINTER.	SUBJECT.	Number in Gallery.	Times Copied.
Sir J. Reynolds -	Heads of Angels - - - -	182	9
Constable - -	Cornfield- - - - - -	130	8
Reynolds - - -	Age of Innocence - - - -	307	7
Turner - - -	The Temeraire - - - -	524	7
Collins - - -	Happy as a King - - - -	351	7
Leslie - - -	Uncle Toby and the Widow - -	403	6
Uwins - - -	Chapeau de Brigand - - -	388	6
Linnell - - -	The Windmill - - - - -	439	6
Dubufe - - -	The Surprise - - - - -	457	6
Gainsborough - -	Portrait of Mrs. Siddons - - -	683	5
Callcott - - -	Return from Market - - -	340	5
Collins - - -	Prawn Catchers - - - -	352	5
Lance - - -	Red Cap - - - - -	442	5
Gainsborough - -	Woody Landscape - - - -	310	4
Turner - - -	Ulysses and Polyphemus - - -	508	4
Ditto - -	Approach to Venice - - -	534	4
Dyckmans - -	The Blind Beggar - - - -	600	4
Gainsborough - -	The Parish Clerk - - - -	766	3
Nasmyth - - -	The Angler's Hook - - - -	381	3
Etty - - - -	Youth and Pleasure - - -	356	3
Turner - - -	The Golden Bough - - - -	371	3
Ditto - - -	The Blacksmith's Shop - - -	478	3
Ditto - - -	The Vale of Tempe - - -	520	3

Appendix, No. 6.

RETURN respecting CATALOGUES SOLD in the NATIONAL GALLERY during the Year ending 31st December 1869.

Foreign Schools.

		£.	s.	d.
Catalogues at 1*s.* - - - -	3,138	156	18	–
„ at 3*d.* - - - -	1,551	19	7	9

British School.

Catalogues at 1*s.* - - - -	1,501	75	1	–
TOTAL - -	6,190	£.251	6	9

Appendix, No. 7.

STATEMENT of ACCOUNT relating to PURCHASE of PICTURES for the NATIONAL GALLERY during the Year ending 31st December 1869.

Dr. *Cr.*

1869:		£.	s.	d.	1869:		£.	s.	d.
January -	London:								
	John Martin - -	200	–	–	January -	Balance of Grant for 1868-69 - - - -	4,240	–	–
March -	Paris:								
	P. De Hooge - -	1,722	–	–					
March 31 -	Balance surrendered at close of financial year	2,318	–	–					
April - -	London:								
	Jan Van Huysum -	900	–	–	April -	Portion of Grant for 1869-70, for the purchase of Pictures according to Estimate -	7,992	–	–
	Albert Cuyp - -	900	–	–					
September -	Milan:								
	Marco Marziale -								
	Ditto - -	1,688	8	–					
	Barto. Montagna -								
December 31	Balance - -	4,503	12	–					
	£.	12,232	–	–		£.	12,232	–	–

1 January 1870. By Balance - - - £. 4,503 12 –

NATIONAL GALLERY.

ANNUAL REPORT of the DIRECTOR of the NATIONAL GALLERY to the Lords of the Treasury, for the Year ended 31st December 1869.

(*Mr. Stansfeld.*)

Ordered, by The House of Commons, *to be Printed,*
15 *February* 1870.

29.

Under 2 *oz.*

THIRTEENTH REPORT

OF THE

TRUSTEES

OF

THE NATIONAL PORTRAIT GALLERY

TO THE LORDS OF HER MAJESTY'S TREASURY.

1870.

The Trustees of the National Portrait Gallery have the honour to submit herewith their Thirteenth Annual Report.

The Board of Trustees is at present composed as follows :—

The Earl Stanhope (Chairman).
William Smith, Esq. (Deputy Chairman).
The Lord President of the Council (for the time being).
The Earl of Derby.
The Earl Cowper, K.G.
The Earl Somers.
The Viscount Hardinge.
The Lord Bishop of Winchester.
The Right Honourable William Ewart Gladstone, M.P.
The Right Honourable Benjamin Disraeli, M.P.
Sir William Stirling Maxwell, Bart.
Sir Coutts Lindsay, Bart.
The Very Rev. the Dean of Westminster.
Sir Francis Grant, P.R.A.
Alexander Beresford Hope, Esq., M. P.

Since the day of the last Report (29th April 1869) up to the present day (inclusive), the number of meetings held by the Trustees is five, and from the 9th of February 1857, when the Trustees commenced their duties, 104.

The list of 77 donations, as given in their former Reports, may now be continued, as follows :—

78. John Wilkes, 1727—1797. A drawing by Earlom.
Presented, 29th April 1869, by William Smith, Esq., F.S.A., Deputy Chairman of the Board of Trustees.

79. Lord Chancellor Cranworth, 1790—1868.
Painted by George Richmond, R.A. Bequeathed by Lord Cranworth, in fulfilment of the desire of Lady Cranworth.

80. Douglas Jerrold, 1803—1857.
Painted by D. Macnee. Presented, 2nd December 1869, by W. Hepworth Dixon, Esq., F.S.A.

81. Alexander Pope, 1688—1744.
A crayon drawing by William Hoare, of Bath. Bequeathed by the Rev. Charles Townsend.

82. Marshal Lord Beresford, 1768—1854.
Painted by Rothwell. Presented, 28th April 1870, by Alexander James Beresford Hope, Esq., M.P.

The purchases made were stated by the Trustees in their former Report as amounting to 203. They are now increased, as the following list will show, to 217 :—

204. Richard Temple, Viscount Cobham. Died 1749.
Painted by Vanloo. (From the Stowe collection.) Purchased 25th June 1869. Price 32 *l.*

205. Algernon Percy, Earl of Northumberland, K.G., Lord High Admiral of England, 1602—1668.
After Van Dyck. Purchased June 1869. Price 10 *l.* 10 *s.*

206. Francis Quarles, 1592—1644.
Painted by Dobson. Purchased June 1869. Price 63 *l.*

207. Hogarth, 1697—1764. Represented sitting at his easel.
From the Collection of the Marquis Camden, who purchased it from the artist's widow. Painted by himself. Purchased August 1869. Price 372 *l.* 15 *s.*

208. King Henry VII., 1457—1509.
Cast expressly from the Monument by Torrigiano in Westminster Abbey. Purchased December 1869. Price 5 *l.*

209. Elizabeth of York, Queen Consort of Henry VII., 1466—1502.
Cast expressly from the Monument by Torrigiano in Westminster Abbey. Purchased December 1869. Price 5 *l.*

210. Leigh Hunt, 1784—1859.
Painted by B. R. Haydon. Purchased December 1869. Price 31 *l.* 10 *s.*

211. Lady Hamilton, 1761—1815.
Painted by Romney. Purchased March 1870. Price 26 *l.* 5 *s.*

212. Hugh Latimer, 1472—1555.
Painter unknown. Purchased March 1870. Price 15 *l.*

213. Nicholas Ridley, 1500—1555.
Painter unknown. Purchased March 1870. Price 31 *l.* 10 *s.*

214. King Charles I., 1600—1649.
A bronze bust by Fanelli. Purchased March 1870. Price 15 *l.* 15 *s.*

215. William Russell, first Duke of Bedford, K.G., 1613—1700.
Father of William Lord Russell. Painted by Sir G. Kneller. Purchased March 1870. Price 25 *l.*

216. Archbishop Sancroft, 161—1693.
A crayon drawing, by E. Lutterell. Purchased April 1870. Price 9 *l.*

217. W. Dobson, the Portrait Painter, 1610—1646.
Painted by himself. Purchased April 1870. Price 21 *l.*

The number of visitors to the Gallery since its opening, and during the occupation of the premises in Great George-street, Westminster, is as follows, taken year by year :—

Year.	Visitors.	Year.	Visitors.
1859 - - - - -	5,305	1865 - - - - -	16,642
1860 - - - - -	6,392	1866 - - - - -	24,666
1861 - - - - -	10,907	1867 - - - - -	24,649
1862 (Exhibition year) - -	17,927	1868 - - - - -	25,344
1863 - - - - -	10,475	1869. The Gallery was not open during the Christmas holidays of this year.	24,416
1864 - - - - -	14,885		

Grand Total - - - 181,608 visitors.

The great event of the past year, in respect of this Gallery, has been its removal to new and more commodious apartments. It was the desire of Lord John

John Manners, on the part of the late Administration, to provide such apartments as soon as possible, and some overtures were in progress for that object, when the late Administration retired from office. But the apartments so to be obtained were to be regarded as only a temporary accommodation; the intention of the Government, as stated by Lord John Manners, having been that the National Portrait Gallery should, as the permanent arrangement, form part of the new buildings to be erected in Trafalgar-square.

The Trustees have no reason to suppose from any intimation which they have received that the purpose of the present Government has varied with respect to the ultimate position of the Gallery, and meanwhile, pending any further removal or deliberations as to such removal, they desire to express their cordial satisfaction at the far more ample space, and the far clearer light, which are now assigned for the exhibition of the portraits entrusted to their charge.

Hence they have been enabled to effect what they have long desired, a chronological arrangement of the portraits. Hence, also, they have had the pleasure of placing in a favourable aspect not a few of those portraits hitherto of necessity crowded closely together, or consigned to some narrow passage, some unsightly corner, or some dark recess. It was the remark, to more than one of the Trustees, of several persons who were already well acquainted with the old apartments, and who came to inspect the new, that they felt as though they had never seen those pictures before.

The larger space now available for the Trustees will enable them to exhibit for the first time an important donation made to them so far back as 11 years ago. In their second Report, dated 15th April 1859, it is described as follows:—

"The Trustees desire specially to mention another (donation), in which many portraits are comprised. Her Majesty's Government have offered to the collection, and the Trustees have with thanks accepted, the great picture of the House of Commons at the opening of the first Reformed Parliament in January 1833, as painted by Sir George Hayter, and as recently secured to the nation by a vote of the House of Commons. This picture, which, exclusive of the frame, measures 17 feet by 10, contains nearly 400 portraits, including, with strangers represented at the Bar, all the principal statesmen of the time, and cannot fail, when exhibited in a good situation, to attract great public interest. The Trustees have only to regret that the very limited space of their temporary, and far from convenient, apartments, has precluded the immediate reception of this valuable picture, which, therefore, although in due form accepted, remains for the present, at their own request, in the charge of Her Majesty's Government."

Under the present arrangement, the Trustees are now taking measures to have this important picture hung in a large vacant compartment near the entrance of the Gallery, and to provide also accompanying tablets with an enumeration of the names.

The picture thus illustrated and explained may, in all probability, add much both to the interest of the collection and to the number of the visitors.

Signed, by Order of the Board,

George Scharf,
Secretary and Keeper.

National Portrait Gallery,
Exhibition Road, South Kensington,
6 May 1870.

THIRTEENTH REPORT

OF THE

TRUSTEES

OF THE

NATIONAL PORTRAIT GALLERY.

TO THE

LORDS OF HER MAJESTY'S TREASURY.

(Presented to Parliament by Her Majesty's Command.)

Ordered, by The House of Commons, *to be Printed,*
12 *May* 1870.

226.

Under 1 *oz.*

Meteorology

[C. 143] Report of the Meteorological Committee of the Royal Society for the year ending 31st December 1869.

The above being an octavo paper is bound with other octavo papers in the Volume lettered Vol. XIX. XX. XXVII, octavo portions.

STANDARDS COMMISSION.

THIRD REPORT

OF

THE COMMISSIONERS

APPOINTED TO INQUIRE INTO

THE CONDITION OF THE EXCHEQUER (NOW BOARD OF TRADE) STANDARDS.

ON THE

ABOLITION OF TROY WEIGHT.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
FOR HER MAJESTY'S STATIONERY OFFICE.

1870.

[C. 30.—*Price* 1*s.* 9*d.*]

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THIRD REPORT.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

We, the Commissioners acting under Your Majesty's Royal Warrant, dated 4th May 1868, for inquiry into the condition of the Exchequer Standards (now called the Board of Trade Standards, or the Official Standards,) of length and weight, and for other purposes therein set forth, in pursuance of Your Majesty's commands to report to Your Majesty from time to time our several proceedings by virtue of the said Commission, humbly offer to Your Majesty our Third Report.

1. Amongst the duties entrusted to us by Your Majesty, we have been directed to inquire and to report whether any and what additions to the existing Board of Trade Standards are now required, and if any and what existing Standards should be discontinued and cease to be Secondary Standards. In our Second Report, dated 3rd April 1869, (S. 13.), we submitted to Your Majesty that we had under consideration the question of the discontinuance of Troy weight, and how far it may be expedient to substitute Metric weights; and that after we should have inquired extensively into the practice and feelings of persons who now use the Troy system, we proposed to state the results of our labours in a future Report.

2. In the Papers appended to this Report will be found all the information accordingly laid before us upon the subject, including the evidence of several witnesses selected by us as fairly representing the classes of persons whose interests were deemed to be involved in the continuance or abolition of Troy weight.

3. After mature consideration, we have come unhesitatingly to the conclusion that it will be for the public advantage to simplify the Imperial system of weights by legislative provisions for the abolition of Troy weight.

4. There appears to be no trustworthy record of the origin of the Troy system, the abolition of which is now recommended. The Troy pound is said to have been derived from the Roman weight of 5759·2 grains, the 125th part of the large Alexandrian talent; this weight, like the Troy pound, having been divided by the Romans into 12 ounces. The earliest Statute of this kingdom in which Troy weight is named, is the 2 Henry V. St. 2. c. 4., for preventing an excessive charge for gilding silver wares, in which it is enacted that all the goldsmiths of England shall gild no silver worse than that of the alloy of the English sterling, and that they shall take for a pound of Troy gilt ("*pur la libre de Troy orre,*") but 46*s.* 8*d.* at most. But Troy weight is universally allowed to have been in general use from the time of King Edward I. The most ancient system of weights in this kingdom was that of the Moneyer's pound, or the money pound of the Anglo-Saxons, which was continued in use for some centuries after the Conquest, being then known as the Tower pound, or sometimes the Goldsmith's pound. It contained 12 ounces of 450 grains each, or 5,400 grains, and this weight of silver coins was a pound sterling. The Tower pound was abolished in 1527, by a Statute of Henry VIII., which first established Troy weight as the only legal weight for gold and silver. This Statute was as follows:—"And whereas, heretofore the merchante "paid for coynage of every Pounde Towre of fyne gold, weighing xi. oz. quarter Troye "iis. vid. Nowe it is determined by the King's Highness and his Councille that the "foresaid Pounde Towre shall be no more used and occupied, but al maner of golde and "sylver shall be wayed by the Pounde Troye, which maketh xii. oz. Troye, which "exceedeth the Pounde Towre in weight iii. quarters of the oz." From this time to the present, our system of coinage has been based on Troy weight.

5. The reasons upon which we have come to the determination that Troy weights should now be abolished by law, and other weights substituted, will be found in the following resolutions, which have been unanimously passed by us:—

(1.) Considering,

That in the Reports of the Standard Commission of 1841 and 1854, opinions have been expressed in favour of the simplification of the Imperial system of weights by the abolition of Troy weight;

That Troy weight has since been legally discontinued for pharmaceutical purposes, and Avoirdupois weight substituted under the provisions of the Medical Act, 1864;

That Troy weights are now used only for the precious metals, and for trade purposes by manufacturers and dealers in gold and silver wares;

That the Troy weights so used for trade purposes appear to be the old nest set of ounce weights, increasing in a binary series up to 256 oz., according to the old Standards established by Queen Elizabeth in 1588, which ceased to be the legal Standards in 1824; and that the existing legal denominations of Troy weights, as represented by the official Standards, are not generally used;

That the decimal series of Troy ounces for bullion, legalized in 1853, has never been adopted by the general public;

That it has been shown to us that throughout the United Kingdom only eight counties and thirteen cities and towns are furnished with legal copies of the official Troy Standards, and two counties and five cities and towns with legal copies of the official decimal bullion Standards;

That the legal provisions for stamping and inspecting Troy weights throughout the country have been practically inoperative;

That the legalization of the use of Metric weights has been recommended by us in our Second Report, and the concurrent use of three distinct systems of weights will be inexpedient and tend to produce confusion and complication, more especially as regards the local inspection of weights and measures, as, in the event of the continuance of the Troy system, it would be requisite to provide for an equally vigilant inspection of Troy weights as of other weights;

That we have satisfied ourselves, from the evidence of various classes of persons now using Troy weights in business transactions, that there are no sufficiently valid reasons for the continuance of Troy weight which can be placed against the great advantage to the public of simplifying our system of weights by its abolition;

We are of opinion that it is expedient that the use of Troy weights be abolished by law.

(2.) We therefore recommend that legislative provision be made, that from and after twelve months from the passing of an Act for that purpose,—

The provisions of the Act 5 Geo. 4. c. 74., for ascertaining and establishing uniformity of weights and measures, and of 16 Vict. c. 29., for regulating the weights used in sales of bullion, and of any other Act or Acts legalizing or requiring the use of Troy weights, so far as they relate to the same, shall be repealed;

All secondary Standards of Troy weight, now deposited in the Standards Department of the Board of Trade, shall cease to be legal secondary Standards;

All copies of such secondary Standards of Troy weight, verified for the use of local Inspectors of weights and measures, shall cease to be legal Standards;

The use of all Troy weights in shops and places where goods are exposed or kept for sale shall be illegal, and all Troy weights found there shall be liable to be seized and forfeited, and the person in whose possession they are found shall, on conviction, be liable to a penalty not exceeding 5*l.*;

All contracts for buying and selling made in terms of Troy weight shall be void;

Such provisions to apply to all weights and measures used for pharmaceutical purposes; and that it be expressly declared that the powers of regulating the weights and measures to be used in Pharmacy, granted to the General Medical Council, under the Medical Act, 1858, be limited to legal denominations of weights and measures for which Standards are provided by law.

(3.) We recommend that for a period of 10 years after the passing of the Act, the use of Troy weights for the internal operations of manufactories and workshops not subject to the visits of Inspectors of weights and measures be permitted, and that no contract or agreement between a master and workmen, or between a wholesale and retail dealer, be illegal, in consequence of its being made in reference to Troy weight;

But that after the expiration of 10 years from the passing of the Act, the same provisions shall be applicable to such Troy weights as to those specified in s. 2.

(4.) Considering,

That the several operations connected with the gold and silver coinage, the purchase of bullion, and the assay of the precious metals, are frequently carried on

with relation to business transactions with foreign countries, and, as such, are matters of international trade;

That we have had the evidence of the late Master of the Mint that the substitution of the Metric system of weights for the Troy system, and of the decimal system of assay for the grain and carat system would be attended not only with no difficulty as regards the Mint, the Bank of England, and the bullion trade, but with advantage to the public;

That, from the evidence produced before us, we have reason to believe that no valid objections or practical difficulties exist to such substitution;

We recommend that legislative provision be made that, in all cases where specified weights of the Troy system are recited in any existing Act of Parliament, and relate to the weight or fineness of the gold or silver coinage, or of bullion, the nearest equivalent Metric weights, according to a Table of Equivalents to be contained in a Schedule annexed to the Act, be substituted.

And we also recommend that in all statements of assays of gold and silver bullion, upon which any legal contracts can be based, the millesimal or centesimal system of assay be substituted for the grain and carat system.

(5.) With regard to Troy weights specified in Statutes relating to duties on gold and silver plate, and on licences for dealers in gold and silver plate,—

We think that it may be sufficient that due legislative provision be made to enable the Inland Revenue Department to substitute either Avoirdupois or Metric equivalents, or the nearest integral equivalents that may be deemed expedient, until such time as a legislative change may be made in the amounts of these duties for fiscal objects.

In the assessment of Custom duties on gold and silver plate imported into this kingdom from other countries, we recommend the substitution of similar equivalents of Metric weight.

(6.) As to the weights to be substituted for those of the Troy system now used by the general public and for purposes of manufacture and trade.

Considering,—

That we have stated our opinion in our Second Report that the general introduction of the Metric system should be permissive only and not made compulsory by law after any period to be now specified, so far as relates to the use of Metric weights for weighing goods for sale or conveyance; and that authoritative regulations should be established by which each series of weights may be readily and easily distinguished by the adoption of conspicuous distinctive forms or otherwise;

That it will be a sufficient hardship upon those persons who now use Troy weights to be compelled to give them up, although for the general advantage of the public, and it will be manifestly unjust also to compel them to substitute Metric weights whilst all other classes of the community are under no obligation to abandon their Avoirdupois weights, and are allowed the option of using Metric weights;

That the grain and its multiples and parts, formerly weights of the Troy system, were made Avoirdupois weights by the provisions of ss. 3 and 4 of the Act of 1853, for legalizing the restored Standards of weights and measures, and will in future be legal weights of the Avoirdupois scale only;

That a decimal series of grain weights has been recommended in our First Report to be legalized as official Standards; and such series from 0·01 grain to 1,000 grains, and additional weights of 2,000 and 4,000 grains, have been constructed, and have been most accurately verified in the Standards Department in order to serve as legal Standards, and for verifying copies for the use of local Inspectors of weights and measures, in order that the public may be supplied with weights of this description duly correct;

It appears to us that upon the abolition of Troy weight, all those persons who now use it, either for manufacturing, trading, or other purposes, should be permitted to substitute either Avoirdupois or Metric weights, and that every facility should be afforded to them for this object;

That for all ordinary purposes the substitution of the Avoirdupois pound, ounce, and dram, with their multiples and subdivisions to the half dram, will suffice for those persons who may wish to substitute the Avoirdupois scale;

That for all such persons who may require more minute accuracy in their weighings, the use of the series of decimal grain weights will meet their requirements;

That such grain weights for public use should be constructed of a distinctive form or material, so as to be readily distinguishable from other nearly equivalent weights.

(7.) We are of opinion that any legislation for carrying into effect the objects of these resolutions should be comprehended in the Bill to be proposed to Parliament by the Executive Government, for the Amendment of the Weights and Measures laws, as recommended in our Second Report.

6. In the minutes of evidence herewith submitted to Your Majesty, bearing upon the question of the abolition of the Troy scale, and upon the present use of Troy weights, much information will also be found relating to the system of inspection of weights and measures now established, and to suggested improvements in this system, including the relation of the Standards Department of the Board of Trade to the local Inspectors of weights and measures. We have completed our inquiries into this large and important question, and hope very shortly to submit to Your Majesty the results of our deliberations in our next Report.

7. We have to lament the loss of one of the members of the Commission, Mr. Graham, late Master of the Mint, who died on the 16th September 1869.

All which we humbly submit to Your Majesty.

G. B. AIRY, Chairman.
COLCHESTER.
STEPHEN CAVE.
JOHN GEORGE SHAW LEFEVRE.
EDWARD SABINE.
W. H. MILLER.
H. W. CHISHOLM.

7, Old Palace Yard,
1st February 1870.

MINUTES OF EVIDENCE.

WITNESSES EXAMINED.

Date.	Names, &c. of Witnesses examined.			Number of Questions.	Page.
1869.					
May 12	Mr. H. Stewart -	Manufacturing Silversmith - -	London - -	1–64	1
,, ,,	Mr. J. M. Garrard -	Ditto - - - -	,, - -	65–135	3
,, 29	Mr. R. Heaton -	Metal Manufacturer - - -	Birmingham -	136–227	6
,, ,,	Mr. C. Houle -	Manufacturing Silversmith - -	Clerkenwell -	228–316	10
,, ,,	Geo. Forbes, Esq. -	Chief Cashier - - -	Bank of England -	317–402	12
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MINUTES OF EVIDENCE

TAKEN BEFORE

THE STANDARDS COMMISSION.

Wednesday, 12th May 1869.

PRESENT:

LORD COLCHESTER IN THE CHAIR.

THE RIGHT HON. STEPHEN CAVE, M.P.
SIR J. G. S. LEFEVRE, K.C.B.
LIEUT.-GENERAL SABINE, P.R.S.
THE MASTER OF THE MINT.
PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. HORATIO STEWART examined.

Mr. H. Stewart.

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1. (*Chairman.*) Are you a member of the firm of Messrs. Hancock?—Yes.

2. Have you the principal share in the management of their business?—Yes.

3. Do you use troy weight exclusively in your business?—Exclusively.

4. Do you make no use whatever of avoirdupois?—Not the slightest.

5. Do you ever use decimal bullion weights?—No.

6. Do you know whether they are ever used in the trade?—Not in our branch of the business.

7. Your business is that of goldsmith and silversmith, is it not?—Yes.

8. As far as you know of goldsmiths and silversmiths, such weights are never used?—No.

9. As you make no use of avoirdupois weight, I need hardly ask whether any confusion has arisen from the concurrent use of troy and avoirdupois weights?—I know of none.

10. Can you see any objection to the abolition of troy weight?—It would be attended with great inconvenience till one gets accustomed to any other weights.

11. Do you consider that the trade generally would object to it?—I think they would object to the inconvenience they would be put to in learning, as it were, another measure. I do not know anything exactly beyond that. They would have to go to school again for a short time, but beyond that there would be no inconvenience.

12. If they found any other system more commodious in the long run, they would not object to it, you think?—I do not think they would.

13. Can you state how far the abolition of troy weight would cause inconvenience to the home trade?—It must cause a temporary inconvenience through the difference of calculation, but beyond that I do not know of any other inconvenience.

14. Do you think that it would cause any inconvenience as affecting their customers?—No, not the slightest.

15. Supposing it was abolished by law, what period would be convenient to the trade to be fixed when troy weight should be declared illegal?—I do not think that the period need be fixed; it appears to me that the alteration could be made at any time; there is nothing dependent upon any particular period.

16. But you think it would be desirable to give some time for the public mind to be accustomed to it?—Yes.

17. Do you think that people could learn it within a few months?—Say six months; I think that would be quite time enough. I do not know that it would require any particular given time to get acquainted with a simple metric system. I should say that a few months was quite sufficient.

18. In fact, I understand you to say that, although you think it is a change which the trade might dislike at first, you yourself are not particularly opposed to it?—No; if it is any great general advantage, I do not see that there is anything that the trade can object to.

19. Supposing that troy weight were abolished, should you prefer the substitution of metric or avoirdupois weights?—I should unquestionably prefer metric weights.

20. We understand that the troy ounce is now the unit of weight for gold and silver wares. Have you considered, in the event of its abolition, what unit would be the most convenient to be substituted?—The nearest metric equivalent to the ounce troy.

21. Are you engaged to any extent in your business in foreign trade transactions?—I have been to some extent mixed up with foreign purchases.

22. That, I presume, is one of your reasons for considering that the substitution of metric weight would be advantageous?—No doubt.

23. Do you also think that it would be convenient to every branch of your trade?—Yes, when they are accustomed to it; it would be very inconvenient at first.

24. And if you made a change you would rather start afresh with that than with avoirdupois?—Yes, unquestionably.

25. Even for home trade, without relation to the foreign trade?—I do not think it could make any difference.

26. In foreign trade you come in contact with countries where it is already adopted?—Yes; and it must be a great advantage in business with foreign countries.

27. Do you know what the feeling of the trade generally would be?—As a rule, I think there is not much purchase of silver and gold by weight between this country and abroad, so that I do not know that it would make any difference in the trade. I am speaking of course of our own branch of the trade; I cannot speak with regard to bullion dealers.

28. Can you state from your own experience how far the substitution of metric weight for troy weight would affect the computation of the assay of gold and silver, and the consequent quotation of value?—I cannot answer that question.

29. That has not affected you in your business?—No; that is not in our business at all.

30. The payment of duties on gold and silver plate affects you, does it not?—Yes.

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31. With regard to that, do you see any objection or inconvenience in substituting an equivalent metric weight for the troy ounce?—I think there can be no difference.

32. The duty would, of course, have to be levied on a new basis?—It would be at about the same rate. I apprehend that it makes no difference whether you pay so much per gramme or whether you pay so much per ounce if there is the equivalent in value.

33. You do not think that there would be any inconvenience in having exactly the same rate of duty?—If there is any serious alteration in the duty it would make a very great difference to us.

34. The same amount of duty must be levied upon every fractional amount?—We pay duty per ounce now, and if the duty were in the same proportion per gram that we pay per ounce it would come to the same thing. There would be no inconvenience in that respect, that I can see.

35. Have you considered the question of the compulsory substitution of metric weights for troy weights?—Yes; I have thought of that.

36. I think you have said already that you do not consider that it would be objectionable to the trade generally, except just at present?—Except the temporary inconvenience that it would cause.

37. Do you think it would meet with much opposition on the part of the trade?—I think it would.

38. Do you suppose that a numerical majority of the trade would make a strong protest against it?—I should think it very likely, because they would not want to have the trouble of re-learning a portion of their business.

39. If the Commission should recommend such a measure, do you think that the trade would use all their influence to oppose it?—Yes; I should think they would.

40. But you think that it would be merely a temporary opposition?—It is a difficulty that the trade itself could very easily get over, because a man of average intellect could very soon make his calculations according to the change.

41. Have your weights and balances ever been inspected by an authorized inspector of weight and measures?—Never to my knowledge.

42. Do you know of any reason which makes it desirable that troy weights or weights used by dealers in gold and silver wares, together with their balances, should not be subject like those of other trades to the examination of inspectors?—No reason at all; it has never been the custom to do it; but there can be no reason against it, an honest trader ought not to mind it.

43. But it has never been done?—Not to my knowledge.

44. Do you suppose that it would be thought by any person vexatious at first?—I do not see why it should at all, I speak for myself; if an inspector came tomorrow morning and wished to see our weights they are at his service, and he could examine them, I should not object.

45. Have you any other observations to lay before the Commission?—Only this, it appears to me that if a change is necessary at all there would still be two measures; we should have avoirdupois and metric as against avoirdupois and troy.

46. There would still be different measures in your trade of gold and silver?—Yes.

47. You think that there would be an advantage, whatever it may be, in having one system?—Just so.

48. Attaching importance to one system, do you think it desirable to substitute avoirdupois?—No; it would not do to apply avoirdupois to our business.

49. I understand your opinion to be against that entirely?—Quite so.

50. (*Mr. Cave.*) I do not quite gather from your evidence whether you consider that there would be an absolute advantage to those houses who do not deal with foreign customers by making a change to the metric system?—I cannot see any advantage in it myself beyond that it is a good means of calculation; possibly it is simpler than the troy calculation.

51. With regard to those whose trade is confined to this country, you think that the great majority would consider it better to remain as they are?—Yes, I think so.

52. Is that your opinion also?—If it is requisite to do it, it must be for some reason that there are advantages in it nationally; the little trouble that it would be to learn the difference, I should raise no objection to myself.

53. Do you consider that the introduction of the metric system in place of the troy in the gold and silver trade would probably be the first step in introducing the metric system throughout the country, and in that respect would be a great advantage?—I consider that that is the reason for introducing it; it is with that view, and no doubt it would be an advantage.

54. Have you considered at all whether the introduction of the metric system altogether throughout the country would be an advantage?—I think it would.

55. Do you find among your customers generally an accurate knowledge of troy weight?—Yes, I think so; every one knows what an ounce is. Most educated persons know the value of an ounce of silver, or of 100 ounces of silver, and we find that they are very quick in reckoning the value.

56. It does not come so often under everybody's notice as avoirdupois weight, of course?—Undoubtedly not.

57. Still you find that those who deal with you are conversant with it?—They generally ask what the price and the weight are, and every one knows the value of silver.

58. Therefore there would not be a great many to whom it would be as much trouble to learn the troy as to learn the metric?—I do not think there is is any trouble myself. I do not see the trouble of learning the new system. I take it that a few hours' consideration would make a tradesman, at all events, acquainted with the different relative values between the ounce and its unit under the metric system.

59. Do you find that in dealings with foreign countries there is any positive loss to you in consequence of the difference in the mode of calculation?—No, I think not. I do not know of any.

60. It is not necessary to employ extra clerical labour, for instance, in consequence of the difference?—I have always done that myself. We have never considered it necessary to employ extra clerical assistance. Anyone of ordinary comprehension can find out the value under the French system compared with the English without any difficulty.

61. (*Sir J. G. S. Lefevre.*) The ordinary plate which customers buy, such as spoons and forks, is sold by weight?—By per ounce.

62. Do you think that customers are pretty well aware of the difference between the troy ounce and the avoirdupois ounce?—I do not think they consider the matter at all. Very likely they consider that they are the same.

63. (*The Master of the Mint.*) You have mentioned that you do not know much about assaying; but could there be any difficulty produced by stating the assay at so much per cent. of gold, say 90 per cent. of gold, instead of stating it in the proportion of carats and grains?—I should think not. I do not see any difficulty in it at all.

64. Would it not tend rather to simplify the thing?—Yes, I should think so; if there is 90 per cent. gold and 10 per cent. metal, there could be no difficulty in calling it so.

The witness withdrew.

Mr. James M. Garrard examined.

65. (*Chairman.*) You conduct a very extensive business as a goldsmith?—Yes.

66. Do you use exclusively troy weight in your business?—Yes.

67. Do you make no use of avoirdupois?—None whatever in our business as silversmiths and goldsmiths.

68. Do you make any use of decimal bullion weights?—None whatever.

69. Have you any knowledge of their being used in your trade at all?—In the silversmiths' or goldsmiths' trade I do not believe they ever are used.

70. Do you know whether the concurrent use of any other weight than troy weight has ever occasioned any confusion?—No, there is no confusion at all on that score.

71. Do you see any objection to the abolition of troy weight?—Practically I think there is a great objection to it.

72. Do you think so on account of the great confusion that would be occasioned at first?—It is rather occasioned by the education of the men in the trade. They have been educated, and have learned the simple rules of aritnmetic, and the weights and measures when they were boys. Men to be of any use in our trade to their masters must have been several years employed; they are men who never learnt decimals and at the present time they do not understand them.

73. I am not at present on the question of metric weight, but I asked you whether you saw any objection to the abolition of troy weight?—My answer equally applies to avoirdupois weight; the men have a knowledge of avoirdupois, but the avoirdupois gives us no equivalent to our unit.

74. For that reason you think that it would be impossible without great inconvenience to substitute the one weight for the other?—Yes.

75. That being your opinion you would, I suppose, consider that the trade generally would object to it?—The practical portion of the trade would.

76. Do you think that the objection would not be removed after the first year or two?—It would not be removed in 10 years.

77. Then you do not see that there would be any subsequent advantage to you which would make up for the inconvenience at first?—I do not think so.

78. In the trade with foreign countries probably it might cause less inconvenience, but do you think that the home trade particularly would suffer?—The trade generally taken as a class are composed of small workpeople, and it is to those small workpeople that the confusion would be caused. To houses such as ours or where the manufacturing department would be conducted by a partner who is well educated, of course it would cause no immediate confusion; but to small manufacturers, who are to large manufacturers in the proportion of 100 to 1, it would, I believe, cause great disadvantage and great confusion.

79. What do you think would be the feeling of the customers upon the subject; do you think it would cause also great inconvenience to them?—As far as my experience goes, I find that the customers are satisfied to rely upon the house they come to.

80. Do you think that many of your customers remember at the time of their purchases that they are not buying by avoirdupois weight, to which they are accustomed in other things?—I think they know it, and were taught it at school.

81. They were taught it no doubt; but do you think they bear it much in mind?—Yes, I believe that they do.

82. Your own opinion is clearly unfavourable to the change?—Yes.

83. Supposing such a change were made, what do you consider would be the necessary period to elapse before troy weight was declared illegal?—My only opinion upon the subject is, what I was about to express before, that we must take into consideration the status of those upon whom we rely, namely, the workpeople. I feel satisfied that in the trade generally you could not introduce an alteration of weights without detriment to the employers under 10 years. In addition to that we have to consider the alterations necessary in several Acts of Parliament, which would require to be watched by those who would benefit or suffer by them. There are Duty Acts and there are Diet Acts and numerous Acts of Parliament, all of which would require alteration, and with those Acts all our men who have been 15 or 20 years in the trade are conversant.

84. Upon the first point, with regard to the abolition of troy weight, I understand your opinion to be that the inconveniences would be so great that the trade would strongly object to it?—The practical portion of the trade would.

85. (*Mr. Cave.*) Have you much to do with the foreign trade?—We have a great deal to do with Germany and with France.

86. Do you find any inconvenience owing to the different systems of calculation in those two countries and your own?—Personally I have never found any.

87. Do you employ particular clerks to conduct the foreign portion of your business?—In our house I conduct that myself.

88. Do you receive orders from foreign customers in their own weights, or in the decimal weights, and others?—Never.

89. Do they give you orders in troy weight?—They give us orders for articles, only requiring us to state the weight, which we do either in decimals or in our troy weight, just as they please; but I have never had a single application requiring me positively to give the weights decimally.

90. Then you suppose that your foreign customers understand troy weight?—I can scarcely assume that, because we so seldom sell at per ounce or by any weight at all. Our articles are usually charged all at per article, although the weight is always stated.

91. I thought you said you gave the weight sometimes in decimals and sometimes in troy?—We are obliged in entering a parcel of goods in France to give the weights for customs purposes, but private individuals seldom require them.

92. Under the French custom house can you either enter according to the decimal scale or according to troy weight?—If we enter them as troy, they transfer it into decimals themselves at the custom house.

93. Do you know whether that is the case in our custom house with regard to imports, that the custom house officers reduce the foreign weights into English for the purposes of duty?—The customs officers here always weigh; they take no statement, they always put the things into the scales. That is the invariable practice.

94. I suppose in your trade you are not in the habit of sending workpeople to do anything in foreign countries?—We have had instances of that.

95. When that has been the case have they had to use decimals or the foreign scale?—No, they always use troy weight, because they have been working for us only.

96. (*The Master of the Mint.*) Have you had occasion to study particularly the metric system?—I do not think I can say that I have ever been called upon to do so.

97. Do you think from what you know that there would be any difficulty in keeping your accounts upon the metric system?—I think it involves a greater number of figures than in our present system.

98. (*The Warden of the Standards.*) When you spoke of the practical objection to abolishing troy weight and establishing the metric system, did you mean on the part of the manufacturers and the workmen, or also on the part of the dealers?—The manufacturers and the workmen I speakf or only.

99. Can you state whether there would be the same practical objection on the part of the dealers to the abolition of troy weight?—No, I do not think there would be so much objection, because the dealers are generally men who have endeavoured to better their

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position, and who, if they were not better educated to start with, have educated themselves as they have got on. They would take up the new system much more readily than the workmen. I do not think that there would be the same objection as applied to the dealers, but then they are a very small minority in comparison with the workmen.

100. About what would be the proportion?—I cannot give the exact proportion, but for one dealer I should say we have 100 workmen.

101. (*Chairman.*) As to the metric system in particular, my former questions applied rather to the abolition of troy weight; but supposing it were decided to abolish troy weight, should you prefer the substitution of metric to avoirdupois weight?—Under existing circumstances they are both equally objectionable.

102. The troy ounce is now the unit of weight for gold and silver wares, is it not?—Practically it is the unit.

103. Supposing that were abolished, what unit could be most conveniently substituted?—That is a question which I have never been called upon to consider before.

104. You have been asked whether you were engaged to any extent in your business in foreign transactions, and I think you stated that you were with Germany and France; but although you were engaged in the foreign trade, you did not see that the substitution of metric weights would be of any advantage?—No advantage to the trade.

105. With regard to that point, I think you also stated, in answer to a further question, that you thought that the trade, both manufacturers and workmen, would find it inconvenient?—I think they would find it highly inconvenient, for this reason, that assuming we were to instruct a silversmith in the new system, from habit he would still think in troy weight.

106. Why would it only affect silversmiths?—It would affect both silversmiths and goldsmiths. Those are only technical terms, such as masons and bricklayers in the building trade. The silversmith has nothing to do with the chasing department, and the chaser has nothing to do with weight.

107. With regard to another point, do you know anything as to the assay, whether the substitution of metric weight for troy weight would affect the computation of the assay of gold and silver, and the consequent quotation of value?—Practically at present the decimal system is useless to the trade, because we have to take a margin which the decimal system does not allow, and which the carat and grain does allow.

108. A new system of quotation you think would cause confusion?—Yes. For the purpose of buying and selling the assays are quoted both decimally to show the extreme fineness or coarseness, and also in the old system of carats and grains; but to a small manufacturer, who is generally a man risen from the bench, such a statement in decimals is useless, he really does not understand it; and I know several instances in which he has returned his assay paper to be stated in carats and grains in preference to a decimal statement. They know the one, and they do not know the other.

109. Do you think that that is a difficulty which it would take many years to get over?—It might take 10 years; in fact it takes almost a lifetime.

110. Do you think that the trade in their profits would be much affected by the change?—I cannot say that the trade generally would be affected in their profits, because you would simply put upon the masters' shoulders a great deal of work that they can now leave to their employées; we should have to look after details which now we leave to the workmen.

111. With regard to the payment of duty on gold and silver plate, do you think that the substitution of the equivalent metric weight for the troy ounce would have any great effect upon your trade?—If you take the French standard, which is the only system, I believe, that is before the Commission at the present moment with regard to metric weight.

112. What the Commission have before them is the question of the system of metric weights as compared with the existing weights, and whether any one weight, avoirdupois or metric, should be substituted for troy weight?—For me to answer that question I must have the equivalent offered to me. I have no equivalent offered.

113. What I asked was, with reference to the payment of duty on gold and silver plate, whether you see any objection to the substitution of the equivalent metric weight for the troy ounce, as affecting your trade?—I do not see any objection to substituting an equivalent, but there is no equivalent offered as far as I can see at present.

114. What you mean is that there is no equivalent in some simple form, for of course there would be an equivalent to the ounce to be expressed in metric terms for the future?—I must first ask what basis is your metric system to start upon? According to the printed paper which has been sent to me, the French metric system is stated.

115. The system which is adopted in all countries which have adopted the metric system.—According to that system we have no equivalent to the ounce so simply expressive.

116. What I said was, have you any objection to the substitution of the equivalent in metric terms; and what I understood you to say is, that you see an objection because it is not so simply expressed?—There would be no objection if you take the ounce as a standard, and give us a metric term for it; but if we are to take the French weight, as I imagine is proposed by the Commission, the ounce being deduced to grams, gives us no equivalent unit.

117. (*Mr. Cave.*) Do you not think that the gram would do as a substitute for your present unit?—It might do hereafter, but it is in no way a substitute for our unit at the present time; it is not an equivalent for it.

118. Of course it is not an equivalent, but do you think that there would be much inconvenience in the substitution of the gram for the ounce as the unit?—I think there would be a great deal of inconvenience, because, with reference to our duty and Diet Acts, that portion of the business affected by them, which is left in the hands of a foreman, who, being a man of but small education, would find considerable difficulty in thinking in that weight and adapting himself to it.

119. Putting aside that which is an objection to any change whatever, have you considered whether there is any special objection to the substitution of the gram as the unit?—I do not see any particular objection to it if the weight is to be altered, because you may make any unit you like. The only objection to it is that it would be necessary for somebody in the trade, who perhaps could ill afford the time, to look after the interests of the trade in the necessary alteration of the Acts of Parliament.

120. (*Chairman.*) With regard to the inspection of troy weights, have your weights and balances ever been inspected by any authorized inspector of weights and measures?—We have on one occasion, I think, been visited by a sort of court leet, who had no proper standard to gauge our weights by, and they were quite ignorant of the difference between troy weght and avoirdupois weight, and I am informed that they visited Goldsmiths' Hall and were shown the door before they came to us.

121. Are we to understand that they were entirely ignorant of the nature of the troy weights, and they fancied that the troy weight was an incorrect weight?—Yes.

122. Have you never had any authorized inspector?—No.

123. Do you see any reason why troy weights, or weights used by dealers in gold and silver wares, together with their balances, should not be subject to the examination of inspectors like the weights used in other trades?—Certainly not; I see no objection whatever. I think that there would be a better guarantee to the public, and that it should be so.

124. Have you any observation which you wish to make upon any subject which has not been touched

upon in the questions that have been laid before you?—I think the only observations that I would make would be practical ones on any system that the Commission might be inclined to recommend. On the whole subject I see considerable difficulty in making an alteration, but they are all practical difficulties, and in connexion with the gold and silversmiths trade at large the present system of weights I believe to be sufficiently accurate and sufficiently fine for us to express in weight, and it involves a lesser number of figures than the decimal weight would involve. I think that that would be the strongest practical objection, in short, that could be offered to it, that our present system involves fewer figures than the metric system does.

125. You think it would cause a great deal of inconvenience in keeping your accounts?—My opinion is, that the decimal system at present being so little understood appears more difficult on the face of it to practical men than the expression of ounces, pennyweights, grains, and a simple fraction.

126. (*The Warden of the Standards.*) Supposing that it were decided by the legislature to introduce the metric system into this country, there would then be three distinct weights, avoirdupois weight, troy weight, and metric weight. You stated that there would be a great practical objection to the abolition of troy weight; do you think those practical objections ought to weigh strongly against the great public inconvenience that must result from three different systems of weights being legally established in this country?—I think that the practical objections would weigh against the introduction of a third weight at all; we have but two at present.

127. That is true, but supposing that upon general considerations it should be thought expedient to introduce the metric system into this country, do not you see very great practical objections to there being three distinct systems of weights legalized in this country?—Yes, most certainly; because from my intimate knowledge of every class of workmen employed in our trade I can well imagine the difficulty that would be experienced by small traders in all sorts of wares and in other trades.

128. Looking to the general advantage to the country, do you think that the practical objections to the abolition of troy weight that would be entertained by manufacturers in gold or silver should weigh sufficiently to retain the troy weight, and so to have three systems of weights?—You are now putting another question altogether.

129. I am putting the special objections on the part of the manufacturers of gold and silver against the general objection thoughout the whole country to having three distinct species of weights?—We should have quite as much objection to the sale or purchase of bullion by a metric system as general dealers would who employ avoirdupois weight. But your question is put rather too broadly for me to give a decided answer upon it. If you ask me only with reference to the troy weight and the compulsory substitution of any other weight for the troy weight, I can give you a decided answer.

130. My question applies to the balance of inconvenience to the trade in abolishing troy weight as against the great public convenience of having one system of weights less for legal use?—In any question of that sort we must fall back upon our Acts of Parliament. All Acts of Parliament with regard to the gold and silver trade are in troy weight, and everybody is in the habit of using troy weight; and unless you brought in fresh Acts, we could not employ the metric weight if you legalized it; unless you have an equivalent for our present unit, we could not use anything but our troy weight.

131. In the event of the abolition of troy weight, of course it would be necessary to consider all those provisions in the existing Acts of Parliament which embody troy weights?—Yes, but you put the question to me, supposing there was a third system of weights when the metric weight was legalized; but you must make it compulsory before we could consider it at all. If you introduce the system, making it only a legal system, you must alter all our Acts before it could affect us.

132. We are considering this question with the view of recommending an alteration of the law, and we require evidence as to what provision should be made before the law can be altered, and the object of my questions to you is to obtain information with regard to the balance of inconvenience to the trade as against the general convenience to the public?—I think the inconvenience to the trade is very great in any alteration, because we have to go to the lowest classes in the trade, and those are men whom it will take a lifetime to instruct; they very seldom can get out of the system in which they are first instructed. There is great inconvenience in any alteration, especially in a trade which has so many branches as our trade. It is not so much the employers as it is the people that we employ with whom the objections and the difficulties would be found. Those who are educated at all have been educated in the very simple rules of arithmetic; they have learned certain tables, and as long as they live they will never learn anything else. In illustration of this I may mention a most curious case that happened to me today. I was at a nobleman's house and let in by a very old retainer of the family. This man said to me, "I am 80 years of age to-day." I said to him, "It is a very nice day for a birthday." "Yes," he said, "to me it is the 1st of May; to the "next generation perhaps it will be the 12th, but I "cannot get out of my old mode of reckoning." That was a very curious fact, and it will show when men, who have but little education, are once started upon a system, how difficult it is to get them out of it; you cannot get them to take up a new system, they are not educated to understand it; it takes a lifetime in fact.

133. (*The Master of the Mint.*) They can understand the present system although it is so complicated, but a simple system like the metric they cannot; do not you think that English people in the course of a month, if they had no choice but to learn the metric system, would be able to use it with perfect ease?—Yes; but you must also consider that in the case of the men whom we employ it is not actually compulsory upon them to learn it. We derive a great advantage from their knowledge of the present weights, but if it is compulsory upon us to adopt another weight the men will say, "We know nothing about it;" and they will throw a great deal more upon the shoulders of the employers, whilst they will do their own work just the same. To illustrate my objection I would mention this, in my business, as a practical silversmith, very often in putting a piece of work in hand I give a man a circle of plate weighing, say, 15 or 16 ounces, and model or outline of some object, and I say you are to make this 12 ounces; and you are to work it down as nearly as you can to 12 ounces. The man understands perfectly well what 12 ounces are, because he had to begin work when he was perhaps under 14 years of age, and has from habit become versed in troy weight. If you give him another weight he would say that he does not understand it; this of course would be in the first years of the substitution; each would grow into the knowledge of it, but it would take time.

134. (*Mr. Cave.*) Do you find the workmen unwilling to give themselves the necessary trouble?—I generally find that workmen are very unwilling to do more than they are absolutely obliged to do.

135. I suppose they would say if the law makes it compulsory you must turn it into our own weights for us?—They would say at once you must do the work for me.

The witness withdrew.

Adjourned to Saturday the 29th instant, at 11.30 a.m.

Saturday, 29th May 1869.

PRESENT :

LORD COLCHESTER IN THE CHAIR.

SIR J. G. S. LEFEVRE, K.C.B.
THE ASTRONOMER ROYAL.
THE MASTER OF THE MINT.
PROFESSOR W. H. MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. RALPH HEATON examined.

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136. (*Chairman.*) You conduct a large business of manufactures in metal at Birmingham, do you not?—I do.

137. Do you use troy weights exclusively in your business, or do you use avoirdupois weights also?—Troy weights rarely, avoirdupois weights largely, and metric weights much more extensively for our foreign business, not decimal bullion weights but metric weights.

138. Do you know whether they are extensively used in the trade also, or whether you stand alone in using metric weights?—Metric weights are not used very largely in Birmingham, and decimal bullion weights not at all, that I am aware of.

139. Have you found any inconvenience or confusion arise from the concurrent use of troy and avoirdupois weights and metric weights?—Yes, we have found it inconvenient. As avoirdupois weights are in general use, we have often weighed in avoirdupois and reduced the weight into troy.

140. I understood you to say that you have found confusion arise sometimes?—We often use the avoirdupois and convert it into troy, which is the cause of some confusion of course.

141. Have you found that it has caused much inconvenience generally to you, or your customers, or that mistakes have been made between the two weights in consequence of their having bought by one weight thinking that they were buying by another?—I cannot say that I have. In the electro-plate trade, the articles to be plated are made from a material which is bought by avoirdupois weight, and they are made in avoirdupois weight, but when they come to be plated they are weighed by troy weight to see what quantity of plating is put on.

142. Do you think that has led to mistakes on the part of buyers?—I cannot say that it has led to mistakes on the part of buyers, but it has led to confusion certainly, because there are two sets of weights to be used instead of one.

143. Do you object to the abolition of troy weight?—No, I do not.

144. Do you think that the trade generally would object to it?—No, I have consulted those largely engaged in the silver, electro-plate, and jewellery trades, and they tell me that they think it would be better to have but one kind of weight rather than as it now is, namely, weights bearing the same names but of different weights.

145. Are you speaking of those engaged in the trade at Birmingham or elsewhere?—At Birmingham.

146. Do you think that the feeling of the trade of Birmingham is that it would be a good thing to get rid of troy weight?—Yes.

147. Are we to understand that in Birmingham both avoirdupois and metric weights are in large use?—Yes, but avoirdupois much larger than metric weights.

148. And much larger than troy weights also?—Yes, much larger than troy weights, avoirdupois is the general weight.

149. Therefore, you have three weights in use, and you think that the trade generally would consider it a good thing to reduce them to one weight?—Yes, to one weight certainly.

150. Can you state how far inconvenience would be caused to the trade in any way by abolishing troy weight?—In my opinion, if the change were compulsory the inconvenience would be very slight, but so long as it is permissive it would give rise to great confusion.

151. You do not think, although some people have said so, that the trade would be very much annoyed at first at being obliged to give up troy weight and adopt others instead?—No, I have been surprised to find that they have expressed themselves quite willing to adopt either the one or the other, so that only one should be in use.

152. Do you think it would cause any inconvenience to the customers?—No; as many customers buy other things by avoirdupois weight, I consider that one series only would be an advantage. Usually retail purchasers of silver plate from silversmiths have only the convenience at their command for testing them by avoirdupois weight. Persons buying silver spoons, or anything else, take them home, and in 19 cases out of 20 they are not in possession of troy weights to test the weight, whereas they are in possession of avoirdupois weights.

153. Supposing that the suggested abolition of troy weight were made compulsory by law, what period would it be convenient to fix at the end of which the use of troy weight should be declared illegal?—I think 12 months would be ample. In Italy, when the various states adopted the metric system as the general mode, and when Naples and Sicily were added to Italy, 18 months were allowed for the weights, measures, and moneys to be changed. Some people complained about the change, those who would not take the trouble to study it, but when the change was effected, they were unanimous in approving of the change.

154. (*The Master of the Mint.*) You are engaged largely, are you not, in the coining of bronze copper monies for foreign governments?—Yes, very largely.

155. And in the coinage executed at the mints of the foreign countries themselves?—Yes; sometimes, in France, we have coined at the Imperial Mint of Marseilles, and in Italy, at the Royal Mint, Milan.

156. Were you present in Italy during the occurrence of the change in the weights?—Several times, and my brother resided there permanently during the change.

157. So that you had every opportunity of witnessing its being carried into effect?—Yes, very excellent opportunities.

158. How do you find that your common workmen in England appreciate the metric system of weights?—They get into it at once. It is so simple that if they know nothing of the metric system, it is but a matter of 10 minutes; they have to forget their ounces, and pounds, and quarters, and cwts., and tons, and they find it much more simple.

159. Do you think that the calculation is more likely to be exposed to mistakes?—It is much more likely to be correct, because in our English system we have to add up our ounces, divide by 16, add our pounds and divide by 28, add our quarters and divide by 4, and add our cwts. and divide by 28, to get our totals, whereas in our calculations by the metric system we simply add up and carry; there is no possibility of mistake from either a wrong divisor or a wrong division. In the case of the metric system, it does away with such operations altogether, and hence there is much less likelihood to mistake, in my opinion.

160. (*The Astronomer Royal.*) You mentioned that

you used the metric system in some measure; in what part of the trade is it used?—Our contracts with foreign governments are nearly all on the metric system, I may say all now. We have just finished a coinage for Roumania, and we have adopted the metric system. We have an important contract now for Brazil, and that is all on the metric system. Our accounts in our works are kept in avoirdupois weight up to the point of delivery; there are the additions and divisions for ounces, pounds, quarters, hundredweights, and tons; for all the operations, casting and rolling and everything else. Then we come to the delivery, and it is simply in metric weight, where there is only one adding. The things are side by side, showing at once the superior simplicity of the one over the other.

161. That is exclusively confined to the foreign trade?—Yes, exclusively so; we are largely engaged in the home trade in metal matters with other people not adopting the metric system, and they never will adopt it until they are compelled, because people will not take trouble about those things, so that we are compelled to keep on with the old system for our home trade.

162. Supposing a recommendation should be made to the Government that the use of the troy system for the precious metals should cease, in what way could the Government interefere with your operations or with those between you and your workmen—in what way would the matter come to the cognizance of the Government or to the cognizance of the courts of law?—I do not think I clearly understand the question.

163. How could the change be enforced?—By making it compulsory that the metric system or the avoirdupois, whichever were adopted, that and that only should be used after a given time, which would be convenient for the change, so as to enable people to learn the equivalents and to alter their prices in their published rates.

164. The way of doing that would be to make all contracts illegal which were founded upon the use of any other system, would it not?—Yes, I think so. It appears to me that the permissive use of a weight will never cause it to be adopted. For myself I must say that if I had not been obliged to study the metric system, by reason of our foreign operations, the probability is that I should never have known anything about it, and never have thought it worth while going into it; but having been obliged to study it, and working the two systems side by side, I have had ample opportunities of seeing the great superiority of the one over the other; and especially where it is in connexion with measures and moneys, the thing is so very simple.

165. Are you aware of any proceedings that have come before the courts of law in which it has been necessary to verify the troy weights?—I am not.

166. (*The Warden of the Standards.*) It would appear from your evidence that you think the compulsory abolition of troy weight would be a great public advantage?—I think that if it were only permissive and not compulsory it would lead to confusion, but it would be an advantage to have but one ounce and one pound, instead of having two ounces and two pounds varying in weight. I am looking at it from a child's point of view. For instance, if I had to begin life and learn my arithmetic as a young man, I would rather learn one weight than two, there is less chance of mistake and confusion.

167. You think, from your own experience, that if persons were compelled to discontinue the use of troy weight, although they might object to it very much at first, yet in a short time they would adopt it and would find it to their advantage?—I feel sure of it.

168. (*Chairman.*) Supposing that troy weight was abolished, should you prefer the substitution of metric weights or of avoirdupois weights?—Of metric decidedly. From conversations I had with those interested, I find that they prefer that the change should be made at once to the metric, and not have to change to avoirdupois first, if the other is to follow.

169. I presume on the ground that you mentioned, of its being much the most simple form?—Yes, I consider it as near perfection as anything that I ever expect to see arrived at.

170. We understand that the troy ounce is now the unit of weight for gold and silver wares; have you considered, supposing it were abolished, what would be the most convenient unit to substitute for it?—The kilogram, I think, because we have large bullion transactions between this country and France and other countries where the weight is expressed in kilograms.

171. You have not very much to do with the bullion trade yourself, have you?—Only as far as medallists.

172. You stated, I think, that you have not used decimal bullion weights?—No, our demand for the precious metals has been so slight that we have weighed by ounces and grains.

173. I understand that you would take the kilogram as the unit, do you think that there would be much inconvenience in re-arranging all the scales of duty which would have to be paid?—I do not see that there would be any inconvenience if you published the equivalents, as they did on the continent when they made the change, and issued tables showing the relative values of the old and new weights.

174. The unit on which the duty is levied would be expressed by a long decimal as the exact metric equivalent of the ounce?—Yes, it would, if the metric system were adopted.

175. If you levied the duty as at present on the ounce, the equivalent to the ounce not being a round number, you must either alter the duty or you must have a duty of somewhat inconvenient statement, that is to say, you must either have the duty on the kilogram, and therefore alter the nominal rate of duty, so much a kilogram instead of so much an ounce, or you must have so much on the long decimal which expresses the metric equivalent for the ounce?—Yes, you would express it then I imagine by the kilogram as equal to so many ounces.

176. And the rates of duty by which people are accustomed to pay would have to be remodelled; instead of paying one sum on one measure you would have to pay a different sum on a different measure?—We will assume that an ounce is represented by the quantity of grammes in the ounce, opposite to that you would state so many grammes equal an ounce, and you would announce the duty on that quantity.

177. You would retain the existing sum and charge it for the metric equivalent. You see no inconvenience from that?—No, I do not see much inconvenience, there would be some inconvenience of course. I suppose that I am to look at it that the change is to take place compulsorily.

178. We are considering what the effects of the change would be?—There is no doubt that there would be a slight inconvenience whenever any change is made, whatever you may change it to, there would be some inconvenience until the thing is understood.

179. The troy ounce would be 31·10349 grammes, would you see no inconvenience in the duty being levied at so much per 31·10349 grammes?—The decimals would not seem so long when you come to 1,000 ounces, you reckon them even easier than you would one ounce.

180. Because the duty at present is so much per ounce?—Yes.

181. You stated that you were engaged to a great extent in foreign trade transactions, and I think I understood your opinion to be, that an entire substitution of metric weights would be very advantageous?—Yes.

182. Do you consider that the trade generally would be also affected favourably?—I consider so. Some of them not engaged in foreign business, but only in a trade where our avoirdupois weights are used, do not see the advantage of adopting any other system. I feel sure that with regard to other countries, where articles of a similar kind are made, it would be found convenient to have similar weights,

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(even if we could not have the same moneys,) for comparison of value, and it would be an advantage.

183. Are you able to state anything from your experience as to how the substitution of metric weight for troy weight would affect the assay of gold and silver, has that come into your business in any way?—It would be more simple if given in the metric system.

184. You think that a totally new system of quotation would not cause confusion, but rather convenience?—I think that a change to the metric system must cause some confusion, and consequently temporary inconvenience, but it would be amply repaid by the advantages that would follow.

185. You think that in a year or two the inconvenience would cease?—Decidedly.

186. Would the change in any way affect the trade in their profits?—It appears to me that the more simple any form adopted is, it must be best and most just for both buyer and seller, for they would neither gain nor lose in the alteration of the rate of charge.

187. Do you think that there would be no alteration in the rate of charge, but that it would be an exact equivalent?—Yes, I think so.

188. You think, therefore, that as there would be no alteration in the rates charged, the profit would remain the same?—Yes.

189. I understood you to say that you saw no objection to the substitution of an equivalent metric weight with regard to the payment of duty on gold and silver plate?—No, I see no objection to it.

190. You think, therefore, that the compulsory substitution of metric weight for troy weight would be acceptable to the trade generally?—Yes; I say that a permissive system would give rise to confusion, but a compulsory system would not, because I may be disposed to continue on the old system as a seller, and you may be disposed to adopt the new system; I may send my invoice to you in one kind of weight, and you may desire it in the other. If the law does not say that it must be in the one form, people will be always disagreeing, I imagine.

191. Do not you think that if the two systems were permitted the more convenient one would in the end drive out the more cumbrous?—It would take a long while, if people were allowed to do it just as they think proper.

192. Do you not think that the more convenient system would become universal in the end, and drive out the other?—Not in our day.

193. You think that during the interval, while it was finding its level, there would be a great deal of confusion?—A great deal I think.

194. You think that the fact of the compulsory adoption of the metric system would merely anticipate what the sense of the world would bring about in the course of time?—Yes; because people who are ignorant will not take the trouble to enquire into it until they are obliged.

195. You do not see any great difficulties in the practical details?—Certainly not.

196. It has been stated that it is customary to give pieces of gold or silver to workmen, to be worked up to so many ounces, is that the case in your experience?—I am not aware of it.

197. Do you think that any inconvenience would be caused by the worker having to work it up into so many grammes instead of so many ounces?—No; they would have the equivalent, so many ounces equal to so many grammes; there would be no difficulty about it.

198. Do not you think that the workmen would go on thinking in terms of troy weight, and in that way puzzle himself with the other system?—If he is very stubborn perhaps he would not take the trouble.

199. But that is not the character which you would give to your workmen?—Certainly not; if they thought it was an improvement they would study the thing.

200. (*The Master of the Mint.*) An assay being expressed decimally on the metric system does not require any explanation, and it is in that respect different, is it not, from our system, where the division is in 24 parts, or quite arbitrary?—That is so, and it is expressed always, as you are aware, in thousandths, which is very simple. Where we have large bullion transactions, it seems to me that it would be very useful to have the same figures expressed here to express the weight, whether our money is the same or not. Of course it would be more useful if we adopted the same system of monies too. There would be no calculations then if the monies and the weights were alike; but there would be simply a calculation, comparing our money without comparing the weight.

201. (*The Astronomer Royal.*) You have had occasions to use the term carat. Do you express fineness by carats?—We do not do much in the precious metals, all our bronze and those kind of metals are expressed by what is called the millieme system. The assayers who come to us from Italy, and those who assay for us in France, always express themselves in milliemes.

202. (*Chairman.*) As to the last branch of the subject, have your weights and balances ever been inspected by an authorized inspector of weights and measures?—Not our troy weights. The avoirdupois have. We are asked if we have any other weights on the premises, and we say "Yes, we have," but the inspector says, "I know nothing about them, and I have no authority to try them." I have inquired at our office of weights and measures, and I find that they have no standards by which they could test our other weights. In Birmingham, in fact, there is no means of testing metric weights.

203. Do you see any reason why troy weights or weights used by dealers in gold and silver, together with their balances, should not be subject to the examination of inspectors like those of other trades?—I see no reason why they should not.

204. Do you think there would be any objection on the part of the trade to have a proper inspection of troy weights, or any other weights that may be introduced?—They may object. People do not like to have persons coming into their premises to inspect their weights, and there would be some trouble about it no doubt, but for our part we are very glad to have things set right.

205. Have you any other observation which you would wish to lay before the Commission?—I am strongly of opinion that any legislative enactments with regard to this subject should be compulsory and not permissive, and seeing that so large a portion of the civilized world have now adopted the metric system of weights, measures, and monies, I think it would greatly facilitate commercial transactions between this country and foreign states if the system already so largely adopted were brought into use here, and so long as the metric system is only permissive, I feel sure that the lethargy of the people will prevent its ever being used. At present in our works the metric system is only used in connexion with our foreign transactions, where we find that our accounts are kept with great simplicity compared with the complicated system of English weights, which is really anything but desirable. I do not think the continued use of our present scale advisable. The saving of time in educating our young people in the metric system, compared with the other, would be very great, thus giving them time for other studies. I have had great opportunities of seeing the two systems working side by side, and I am thoroughly convinced of the superior simplicity of the one over the other, but the simplicity of the metric system cannot be fully appreciated until the weights, measures, and monies are all included in it.

206. Do you think it would be desirable that any legislation as to troy weight should go hand in hand with legislation as to coinage?—I would look upon the change in the weight as only a step in the right direction. I can express the price of copper in French money and in weight also, copper being, say, 80*l.* a ton equals 2,000 francs, or 2,000 francs for

1,000 kilograms, and so on down to 2 francs for 1 kilogram. You have the same figures all the way down, the price being 80*l.* a ton. You cannot compute in English in the same manner how much it is an ounce. It is a long sum.

207. What you want is to have the metric system of weights and measures adopted along with decimal coinage?—Yes. As you know, in France their measures are so beautifully related with their weights, that the one proves the other. It is so very simple in comparison with our system.

208. You have not had so much to do with the bullion trade, and, therefore, with the question of the value of money as connected with weight, but do you think it would be desirable if the coinage were going to be altered, that the change whatever it be as to troy weight should take place at the same moment?—It would be an improvement in my opinion.

209. Therefore should you think it desirable or undesirable, if a change is likely to take place in the coinage, that any legislation as to troy weight should be postponed until the change in the coinage took place?—It would be better if both went together.

210. Do you think it would be worth while even to postpone such a change as this with respect to weights, with the view of bringing both changes about at the same moment?—I think if there is any probability of the metric system being compulsory it would be a mistake abolishing troy weight, and giving people the trouble of using avoirdupois, if next year, or even in seven years, it should be turned over again.

211. If the metric system were to be adopted in the place of troy weight, do you think it would be convenient that it should be effected at the same time as the change in the coinage?—It would be much more convenient certainly.

212. (*The Master of the Mint.*) Was the change in the weights and money simultaneous in Italy?—Yes, altogether.

213. (*Chairman.*) The object of the legislature was, I presume, that the weights and money in the north of Italy might be altered at the same moment as in the south?—Yes, in Sicily and Naples, they had various weights, and 18 months were allowed them to effect the change.

214. It was not that one or more provinces made the change, but that the weights and measures and money of all kinds were adopted for the whole kingdom?—Yes, the system was made uniform throughout the whole kingdom.

215. Therefore the object was not the convenience of Naples or Sicily, but it was part of a general scheme of national unity?—Yes; they would not have made the change if they had been left to themselves.

216. (*Sir J. G. S. Lefevre.*) Do not you consider troy weight on the whole more convenient than avoirdupois weight?—No, I do not see that it is more convenient.

217. Does not the troy pound admit of a greater number, and variety of sub-divisions?—You may divide an avoirdupois pound by the ounce.

218. An avoirdupois pound does not divide by 3 or 12 does it?—No, but I have not studied that subject. I have been more accustomed to avoirdupois weight, and to the metric system.

219. (*The Astronomer Royal.*) With respect to the accuracy of the weights, that rests entirely with the scale makers, I presume, or with the persons from whom you purchase the weights?—Yes, originally it is so. Although the inspectors do not visit our manufactories to try the troy weights, they inform us that they have standard weights, and that we can send our troy weights to them, and they will verify them for us, but they do not visit the manufactories using troy weight at all. I was going to mention that an electro-plater doing a large business informs me that he buys his acids by avoirdupois weight, and his metals by troy weight, and that he adopts the French recipes for some of his mixtures; so that if the metric system were adopted, one system would then serve him instead of three as at present, and he thinks that would be a decided advantage.

220. (*Chairman.*) Supposing that the metric system were made compulsory where troy weight is used now, and that in other cases the metric system, if introduced at all, were only permissive, do you think that in that case the conveniences which you foresee from the introduction of the metric system would be much diminished?—In my opinion it would create confusion.

221. Do you think that if persons bought their gold and silver plate and other articles by the metric system, they would, unless a change were made compulsory, still be in the habit of using the avoirdupois for every other transaction?—In my opinion it is much better that we should only have one weight, and I would have the best weight adopted.

222. You have at present the avoirdupois, and if the metric weight were merely substituted for the troy weight you would still have two, the metric and the avoirdupois?—Yes, and that would tend to confusion.

223. (*The Warden of the Standards.*) Have you any difficulty in getting accurate metric weights?—No.

224. Do you get them from this country or from abroad?—We get them in this country, we are checked by the weights abroad and we exactly tally. We have bought them both in London and in Birmingham. Metric weights are made largely in Birmingham for exportation to the countries where metric weights are used, and singularly enough they are sold by avoirdupois weight.

225. You find no difficulty in getting accurate weights, and there are no complaints about their being inaccurate?—No, we have had no complaint. Our weights, I should say, do not go to any minute weights. We do not go lower than a tenth of a gramme, because we only use the common metals. I had a conversation on the subject with the senior partner of a firm engaged in perhaps one of the largest businesses in this country, as stampers and manufacturers of the various parts of articles in gold, silver, German silver, and other metals for the plate and jewellery trade. For instance, teapots are made in several pieces, and this firm manufacture what we call the roughs, and supply them to the silversmiths, electro-platers, jewellers, and goldsmiths. This gentleman informed me that he should prefer having one description of weight, and he thought that the troy weight might be abolished with little trouble, and the avoirdupois used exclusively; but when I asked him what he thought of the substitution of the metric system, he replied that he did not know what that was. When I explained to him that by that system his addition was simple and not compound, that he only had to add up and carry, he at once said, "That would be very much better, "and I should prefer that, but I should like that "you should see my son who buys and weighs the "different metals, and knows more about it than I "do." The son was decidedly of opinion that one system of ounce would be preferable to the two as at present, and he thought that the troy should be abolished. When I asked him about the substitution of the metric system for the present weights, he said that he did not understand the metric system, he had no idea that the metric system was the same thing as the decimal system, but he had heard how convenient the decimal system used in France and other countries was. When I explained that it was the same, he said that it was the best to adopt, and as he thought that it must ultimately come to that, he hoped we should not have the trouble of changing to avoirdupois if the other were likely to come into use. The question of any change without its being compulsory, he thought would only be likely to create confusion and trouble. If you talk to people about the metric system who have not studied the thing at all, they do not know that it is the same as the decimal system.

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226. (*Chairman.*) Have you known any person who understood anything of the metric system who was strongly opposed to its compulsory introduction?—No. I have never spoken to any one who has understood it at all, who would not be delighted with it.

227. And you do not think that any practical inconvenience would result from the change?—No, I do not. It must be remembered that we make at Birmingham scales, weights, measuring tapes, and all kinds of measures largely for exportation, and many are made on the metric system. It is a common thing and, in fact, manufacturers doing it are largely engaged in making measuring tapes to measure by the metric system on the one side and by the English on the other, and it is very convenient for converting the measurement of, for instance, 1·22 metre into 4 feet, by merely looking on the other side of the tape. In the erection of the mint at Marseilles, our machinery was all made here by the English measures, but we had some French machines and French measures. Our mechanicians at home adopted the double rule system for the purpose of converting one measure into the other, but they very soon abolished the English measure altogether and followed the French metric system, and they quickly accustomed themselves to the different measures. I am sure that we shall be benefited in future operations if we adopt a system so beautifully simple as the one in use so largely on the continent.

The witness withdrew.

Mr. Charles Houle examined.

Mr. C. Houle.

228. (*Chairman.*) You carry on the trade of a manufacturing silversmith in Clerkenwell, do you not?—Yes.

229. Are troy weights used exclusively in your business or avoirdupois weights also?—Troy weights, not avoirdupois at all.

230. Are decimal bullion weights ever used by you?—No, never.

231. Have you any knowledge of their being used in the trade?—No, not at all in the silver trade.

232. Therefore you have been free entirely from any confusion, because you have only used one description of weights?—That is so.

233. Should you object to the abolition of troy weight?—Yes. I think it would cause a great deal of trouble and annoyance also.

234. Do you think that it would be objectionable to the trade generally?—Yes, I am sure it would.

235. Can you explain exactly the way in which it would cause inconvenience?—It would be so complicated that we should have to change all the weights.

236. And you do not see any advantage from adopting a different form of weight which would make up for that inconvenience?—No, I do not see any at all.

237. You do not find any inconvenience in having two weights, troy for one purpose and avoirdupois for another?—Not the slightest.

238. Do you think that inconvenience would arise to customers by the abolition of troy weight?—I think there would; they would be taken in a great deal more than they are now.

239. And do you think that they mistake the avoirdupois pound or ounce for troy weight?—No, they never do that.

240. Supposing we adopted the decimal system, which does not reckon by lbs., do you think that there would be some confusion if the names were changed as well as the weight?—Yes, there would be for a time.

241. Of course they could not mistake one pound for another when they cease to go by pounds at all? No; but I think at first there would be confusion.

242. Supposing it was determined to abolish troy weight by law, what would be the period do you think which must necessarily be allowed for people to prepare for it before any change could be made?—A year or two, I should say.

243. The objections you see I presume are the practical difficulties which would arise in working it?—Yes.

244. Do you think that there would be this inconvenience, that the workmen would still be calculating by the ounces to which they have been accustomed? Yes.

245. Have you never had occasion to consider the adoption of metric weight?—No, not the slightest; it has never been any use at all to us, not in silver goods.

246. (*The Master of the Mint.*) You stated that you had not had an opportunity of studying the metric system; but looking upon it as a system in which the weights are expressed in simple terms the same as in numbers advancing by tens, do you think that it would be a difficult system to learn?—No, not at all; but it would alter all the weights of the stock.

247. But you think that, although more complicated, it would be more easily learnt?—No, I should not think it would be very easily learnt by some people; they understand the troy weight so well that it would take them some time to get into other weights.

248. Troy weight being the more artificial system of the two, do you not think it would be easier to acquire the metric system than the present system?—No, I do not think it would at all.

249. (*The Astronomer Royal.*) In your trade does the electro-plate business form any part?—No.

250. In the ordinary manufactures which go on in your business is the work principally done in a factory or is it done by workmen at their private houses?—It is all done in our factories, not at private houses at all, it takes too much room for that.

251. (*The Warden of the Standards.*) Is it generally the case in your trade that the work is done in factories?—Yes.

252. That is I presume as regards the manufacture of gold and silver ware?—Yes, it is all done in factories.

253. In the watchmaking trade, the manufacture of watch cases for instance, do you happen to know whether that is done in factories also?—That is a separate business; there are a great many different parts in watchmaking; there are about 20 different makers all doing different parts.

254. Speaking now with reference to workmen who use gold and silver and who use troy weights, do you happen to know, except just in your own line of business, whether in the case of workmen who use troy weights, there is a large number working at their own houses as well as in factories?—There might be in the watch trade.

255. But that is not the case generally in the manufacture of gold and silver ware?—No.

256. The practice is for the workmen to work in factories?—Yes.

257. You call the others garret workmen, do you not?—Yes, something of that sort—small workmen; but there are not many of them; the watch case men are generally in factories—there are a few workmen who work in a garret, single handed men, but then they sell the watch cases to the factories when they are finished, and the factories would use the weights.

258. In the case of workmen in factories, when you give them out gold and silver do you always weigh it to them?—Yes.

259. And do you weigh it when they bring it back?—Yes.

260. You do that, although they work on your premises?—Yes, to see if they are bringing the right weight, because there are a lot of filings or cuttings which are of great importance.

261. Practically you use troy weights very largely,

and you are constantly weighing out the quantity during the process of the work?—Yes, all day long, and they are very simple weights.

262. I suppose there are very few trades where weights are so much used as in your trade, for that purpose?—I should think not.

263. The value of the material which you are working being so great, it requires to be constantly weighed?—Yes; that is the only way we have of detecting robberies or anything of that sort.

264. Therefore there are probably very few trades which make so considerable a use of weights in manufacturing operations as your trade?—No, I do not suppose there is any. We are continually using them all day long, and we always have the weights tested three or four times a year to see if they are right, because it is as much to our advantage to have them correct as to any one else, as we buy silver, and we have to weigh it in and out.

265. (*The Astronomer Royal.*) Is that testing done by London scale makers?—Yes.

266. (*Chairman.*) Supposing it were determined to abolish troy weight should you prefer to substitute avoirdupois or metric weights?—Avoirdupois would be the most simple.

267. You think it would be the most simple because it is better known?—Yes.

268. But you do not think it would be a more simple mode of calculation in itself?—No, but it is better known.

269. To a person beginning to learn weights for the first time, avoirdupois is not the simplest form that he could learn?—No, it is not.

270. Do you consider that troy weight is as simple a form for a man to learn as any other?—Yes, it is very simple.

271. But you have never given much attention to the metric system so as to form a judgment as to which was the simpler?—No, I have not.

272. The troy ounce is your unit at present for gold and silver wares, is it not?—Yes.

273. I suppose you have not considered what unit could be substituted for that, if it were abolished?—No, I have not, it is so very simple; there are 20 pennyweights to the ounce and 12 ounces to the pound, and that is the end of it; that is all you have got to do.

274. Supposing the metric system were introduced, have you considered what unit should be taken in place of the troy ounce?—No, I have not.

275. Are you engaged at all in your business in foreign trade transactions?—No; we send a little over to Australia, but not to the continent.

276. So that you have never considered whether the adoption of the foreign metric system, which is used abroad, would be any convenience for that purpose?—No.

277. Do you know how far the trade generally would be at all affected by that part of the question?—It would be very trifling I think.

278. Do you mean on account of the foreign transactions not being a large part of the home business trade, or do you think that the convenience would be very small?—The transactions not being very large with foreign countries.

279. But there are some persons in your trade who have large transactions with foreign countries, are there not?—No, not very large; about one or two perhaps, and not above one third of their trade would be with foreign countries.

280. Do you know how far the substitution of metric weight for troy weight would affect computations of the assay of the gold and silver, and the consequent quotation of value?—No, that would be a question for the assayers, and not for me.

281. You do not know how far a new system of quotation would affect them?—No.

282. Do you know how far any change in the consequent quotation of value would affect the trade and their profits?—I think the jewellers would get more profits, because customers would not understand it, but the workmen would not get any advantage from it.

283. In regard to the payment of duty on gold and silver plate, do you see any objection to the substitution of the equivalent metric weight for the troy ounce, as affecting your trade; do you see any confusion likely to be caused thereby?—I suppose they would alter it at the Hall and make it the same thing.

284. The duty would be altered proportionally?—Yes.

285. You do not see that any confusion would arise from either on the one hand having a different duty on a new denomination, or having the same duty on an equivalent metric weight?—I do not think there would.

286. The question of the compulsory substitution of metric weight for troy weight is one which you have not had your attention called to, and I presume you have not given it much consideration?—No; but I think it would be a great inconvenience.

287. Can you state how far it would be acceptable or objectionable to the trade generally?—I think the trade would object to it very much; manufacturers I am sure would, because we have so much weighing in and out that it would be so much more complicated.

288. A workman receives a certain quantity of gold or silver which is to be worked up into so many articles of fixed weight, you do not think that it would be favourably considered if he had to work it up into so many grammes or kilogrammes?—No, I think he would find it very complicated.

289. Do you think it would be a permanent source of confusion?—I think the workmen would take a long time to get over it.

290. If it was only made allowable to use metric weights, and not compulsory, do you think that they would not take them into use?—No, I am sure they would not, they would go on in the same way.

291. Nothing but a compulsory system would induce them to make the change?—Yes, that is so.

292. That you think would be regarded as very objectionable?—Yes, I think it would; most people say so of whom I have asked the question.

293. In the metric system you would almost entirely get rid of compound addition, because everything would be ten times and so on; do you not think that that would simplify your mode of keeping accounts very much?—No, I think it would make it more complicated; it is very simple as it is now. I suppose that is because we are so much used to the present system.

294. (*The Astronomer Royal.*) In stating your weights of gold and silver, do you always state them in ounces or pounds?—Always in ounces; we never use pounds. If we have 1,000 ounces we always say 1,000 ounces or 800 ounces; we never say pounds at all.

295. (*The Warden of the Standards.*) Do you use grains?—No, never; if an article weighs half a pennyweight we call it a pennyweight, we never go less than a pennyweight; neither in buying nor in our workshops do we ever use a half pennyweight.

296. (*Sir J. G. S. Lefevre.*) Practically your table of weights is merely the ounce and the pennyweight?—That is so, and it is as simple as possible.

297. Do you work in gold as well as silver?—No, only in silver; the workers in gold use the grain.

298. (*Chairman.*) Have your weights and balances ever been inspected by an authorized inspector of weights and measures?—No, never, only by the scale makers; we have them inspected and verified by them for our own benefit.

299. But you do not have inspectors come into your premises?—No, never.

300. Do you know any reason why troy weights or weights used by dealers in gold and silver wares, together with their balances, should not be subject like those of other trades to the examination of in-

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spectors?—No; it is to our advantage always to keep them in proper order.

301. Do you think that there would be any objection to having them regularly inspected?—No, we would rather that they should come.

302. Therefore you know of no objection to their being inspected?—We would rather that they should come and see that all is right.

303. You know no particular reason why they are not inspected in the way that other weights and measures are inspected?—No, except that the inspectors know that it is no use; they know that we keep them in order for our own advantage.

304. If a system of inspection were established you would apprehend no objection on the part of the trade?—Not the slightest.

305. Have you any remarks which you would wish to offer to the Commission beyond what you have been asked?—No, I think not. I would merely observe that it would be very objectionable and make it very complicated for a long time if the present system was altered.

306. You think, for the benefit both of the trade and the customers, it would be desirable to retain troy weight?—Yes; and for the public generally I think it would be much better, because the public understand troy weights very well now.

307. Supposing it was resolved to allow the metric system to be used for other purposes in place of avoirdupois, by any one that pleased to use it in ordinary transactions, do you think that there would be any inconvenience to the commerce of the country in having three weights, the troy, the avoirdupois, and the metric weight?—I should think there would be inconvenience, unless it was made compulsory that all should use the same weights.

308. You think if any change was made it should be a compulsory change?—Yes, I should make them all use the same weights.

309. If two weights, avoirdupois and metric, were adopted and brought into common use, do you think there would be an inconvenience from troy weights being used also, and that that should be any reason for abolishing troy weight?—I should think there would be a great objection to having three weights; some people would be selling by metric weight and some by troy weight.

310. So that you would rather have troy weight than have three weights current?—Yes.

311. But at the same time, you think that the abolition of troy weight would be very objectionable?—Yes; the public seem to understand troy weight now; it is astonishing how people who buy silver understand the weight.

312. Do you think nobody ever buys silver plate by the ounce, imagining after all that it is the avoirdupois ounce?—No, they know it is a different weight. People who are in the habit of buying silver seem to understand it as well as possible; they even know the marks, and they always recollect that the pound and ounce are not the same as the other pound and ounce.

313. (*The Astronomer Royal.*) Are silver goods sold in the open shop by weight?—Some things are in some shops; if you go in and buy anything by the ounce, they will tell you the weight, but generally speaking the price is so much per article. They will tell you the weight, if you ask them, and then you can calculate what it is by the ounce.

314. But generally speaking silver goods are sold by the article?—Yes, generally speaking.

315. (*Sir J. G. S. Lefevre.*) Are spoons, for example, sold by the article?—Spoons are generally sold by the ounce.

316. (*The Astronomer Royal.*) Are weights and scales exhibited in the shops?—They have them inside shops; all shops keep weights and scales, because they have to weigh their goods from the manufacturers when they bring them in, to see that they are correct.

The witness withdrew.

GEORGE FORBES, Esquire, examined.

G. Forbes, Esq.

317. (*Chairman.*) You are the chief cashier of the Bank of England, are you not?—Yes.

318. Have you considered the subject of the effect of the substitution of metric weight for troy weight, and of millième report for trade report in bullion transactions?—I have given some attention to it, with the view of ascertaining how it would affect the bullion dealings of the bank as regulated by law, and the laws also which regulate the issue of the sovereign as the unit of value. Some information on the subject has been prepared by me for the use of the Governors of the Bank; but it should be understood that whilst I am allowed to communicate the substance of it to the Committee, the Bank is no way responsible for what I may state.

319. It is impossible, is it not, to have an exact correspondence of weight and quality in the new definition which must be given of the conditions which fix our unit of value?—Yes, quite so.

320. Is that because the equivalent of troy weight converted into metric weight, and of English report into milliéme report can only be expressed in interminable decimals?—Yes, that is so.

321. The ounce, for instance, you would have to express as 3·11035 dekagram, and you would meet with this sort of thing at every turn?—Yes, it would be impossible to fix a basis without having an integer number.

322. You have made certain calculations, have you not, with the view of showing the relations between the two systems, and the divergence from the present system which would result from the adoption of certain assumed bases approximating more or less to the present standards?—I have.

323. What are the data upon which you have based your calculations?—First I have taken the kilogram as 32·150725 troy ounces, and the second datum is that 40 lbs. or 480 ounces troy of standard gold, of 22 carats, or 916·666 fine, by law are coined into 1869 sovereigns.

324. What should be the exact weight of a sovereign in grains?—123·27448 grains.

325. What would it be in grammes?—In grammes I make it 7·98806.

326. In troy ounces what would it be?—It would be 0·25682183.

327. What proportion does one gramme of standard gold bear to the present pound sterling?—It is rather more than one eighth, or rather more than the value of half a crown, its exact value being 2*s.* 6*d.* ·0448525.

328. The value of a kilogram of standard gold of 3*l.* 17*s.* 10½*d.* per ounce amounts, does it not, to 125*l.* and a long decimal?—Yes, to 125*l.* ·18688547, or 125*l.* 3*s.* 8*d.* ·8525.

329. Have you considered the effect it would have upon the value if a kilogram of standard gold were coined into 125 sovereigns of eight grammes each; it would appreciate the value of the sovereign, would it not?—Yes, it would appreciate the value of the sovereign about one third of a penny.

330. On 100,000 sovereigns what would it be?—149*l.* 10*s.* 2*d.*

331. I believe that, according to the French mint value of gold, the present metallic par of exchange is 25·17, is it not?—Yes, the French mint value of one kilogram of fine being 3437 francs and 77 centimes.

332. At the present par of exchange what alteration would the coining of a kilogram of standard gold into 125 sovereigns make?—The present metallic par

of exchange, calculated on the mint value, is 25·17, calculated on the intrinsic value, it is upwards of 25·22. If one kilogram of standard gold were coined into 125 sovereigns, the par of exchange would be about 25·21 instead of 25·17.

333. I think you say that one inconvenience which would be caused is that the lowest current weight would be very much altered?—It would be appreciably altered.

334. The lowest current weight of a sovereign is at present how much below the exact weight?—The lowest legal current weight is 122·5 grains. It is upwards of $\frac{3}{4}$ths of a grain less than the exact weight, accurately ·77448 of a grain.

335. When you come to so large an amount as 100,000 sovereigns what is the amount of depreciation which is possible?—The possible depreciation is 628*l.* 5*s.* 1*d.*, if they are worn to the lowest current weight.

336. On a single sovereign how much would be the depreciation?—It would be on a single sovereign about $1\frac{1}{2}d.$

337. Supposing the French standard of $\frac{9}{10}$ths fine were adopted, and a kilogram of that quality coined into 125 sovereigns, what would be the depreciation in so large a sum as 100,000 sovereigns?—100,000 sovereigns would be depreciated 1,671*l.* 7*s.* 10*d.*, and the par of exchange would be about 24·75.

338. What would the one sovereign be depreciated?—One sovereign would be depreciated about 4*d.*

339. Are you of opinion that it would greatly simplify the calculation of the money equivalent of a weight of standard gold by adopting 8 grammes as the weight of the sovereign?—If 8 grammes were adopted as the weight of the sovereign, there is no doubt that the money calculations would be very much simplified.

340. At present the weight of a sovereign should be 7·98806 grammes?—That is the present weight; you would increase the weight slightly.

341. To what amount would you appreciate one sovereign?—It would be appreciated about $\frac{1}{4}$d of a penny, and the weight would be increased very nearly $\frac{12}{1000}$ parts of a gramme.

342. You have stated that if the kilogram of standard gold were coined into 125 sovereigns of 8 grammes each, it would appreciate the sovereign about $\frac{1}{3}$rd of a penny; in that case the calculation would be rendered tolerably simple, would it not?—Yes, that would be a very simple calculation.

343. You multiply the weight by 100 and you add $\frac{1}{4}$th to it, and attain the result in pounds?—Yes.

344. One kilogram being exactly 125 sovereigns, that is exactly 100 and one fourth?—Yes.

345. What objection is there to the present standard of fineness being permanently retained?—In expressing it in millième report there is this objection, that it involves a recurring decimal, 916·666, that is assuming the millième report to be adopted; but the millieme report is not in practice adopted at all in this country.

346. But it is adopted, is it not, in countries where they are using the decimal system?—Yes.

347. Is it adopted in France, Germany, and Italy?—It is adopted in France, but I do not know of my own knowledge how calculations are carried out in other countries. In Russia the standard is the same as in this country, viz. $\frac{11}{12}$ths fine.

348. In Russia, I presume, they have not adopted the decimal system?—I do not know whether they have in their calculations or not.

349. Do you know the practice in America?—In America they adopt the decimal system of millième report; their standard being $\frac{9}{10}$ths fineness, our standard being $\frac{11}{12}$ths.

350. What would be the divergence in value of a sovereign of 8 grammes from the value of the present sovereign?—It would be about $\frac{1}{3}$rd of a penny on standard gold.

351. If you expressed it as a fraction what would it be?—Perhaps I might say that the object of the calculation to which you refer was to ascertain what millième report would bring a sovereign of 8 grammes most nearly to the value of the present sovereign, and I find by calculation that if the quality of gold were reduced from 916·666 to 915·3, the divergence in value of one sovereign of 8 grammes in weight and 915·3 in fineness from the present sovereign would be less than $\frac{1}{300000}$th part, and that in 100,000 sovereigns there would be an appreciation of only 3*s.* 10*d.* ·6944.

352. On those data, if a sovereign of 8 grammes and $\frac{11}{12}$ fine were appreciated $\frac{1}{3}$rd of a penny, in that case 100,000 sovereigns would be appreciated, 149*l.* 10*s.* 2*d.*?—Yes.

353. Therefore by altering the fineness of the gold you would avoid that difficulty?—Yes.

354. Eight grammes of 915·3 fine would answer that purpose as nearly as possible?—Yes.

355. That would most nearly approximate to the present troy weight of fine gold in a sovereign?—Yes, that is the nearest approximation stated in integral metric weight, and integral millième report.

356. And any other minor matters would have to be adjusted to the new modes of expression?—Yes, some minor matters connected with the business of the Bank of England are regulated by Act of Parliament. At the bank, for example, we are bound to buy all gold that is brought to us at the rate of 3*l.* 17*s.* 9*d.* per ounce, standard, the mint rate being 3*l.* 17*s.* $10\frac{1}{2}d.$ A kilogram of standard gold at 3*l.* 17*s.* $10\frac{1}{2}d.$ per ounce has a value of 125*l.* 3*s.* 8*d.* ·852, and a kilogram of standard gold at 3*l.* 17*s.* 9*d.*, the bank buying price, is 124*l.* 19*s.* 8*d.* ·626. Therefore, $1\frac{1}{2}d.$ per ounce, which is the difference between the bank's buying price of gold and the mint rate, is almost exactly 4*s.* per kilogram.

357. To how many grains do the bank weigh gold?—To 12 grains or 0·025 ozs., and that would be expressed in the decimal of a gramme as 0·778.

358. What would the margin of weight allowed for the turn of the scale if reduced to half a gramme amount to?—To about $7\frac{3}{4}$ grains against 12 grains.

359. How low do you think the lowest current weight of the 8 gramme sovereign might be fixed?—Assuming the difference between the exact weight and the lowest current weight to be equal to that of the present sovereign which is 0·050185 gramme, 7·95 grammes might be fixed as the lowest current weight of the sovereign, the exact weight of which is 8 grammes.

360. You consider that decimal metric weight to be equivalent to the present difference between the exact weight and the lowest current weight of a sovereign?—Yes, almost exactly.

361. Do you think it desirable that the bank and the bullion trade should adopt the millième system of report in its entirety?—Taking the millième report in its real meaning, millième scarcely expresses what that report is, because millième means that it reports to the thousandth part, whereas the millième report, as used in France, goes to the ten thousandth part.

362. Do you think that we can attain such accuracy by that system of report?—I think experience shows that accuracy cannot be practically attained to that great nicety.

363. Can you state any facts in support of that opinion?—I found that out of 2,000 bars of gold lately sent to the Mint, the Queen's assay master confirmed the assayers trade reports of only 85 per cent. The bars which had been assayed on the ordinary trade report in carats, grains, and eighths, on which the bank buys gold, were only assayed to the $\frac{1}{768}$th part; and we find a considerable divergence even in that report.

364. I think you caused 20 bars to be assayed to tenths of the millième by 5 assayers, and you found, did you not, that in no case could they all agree?—Yes, that experiment was made for the purpose of testing how close the assayers could go on the millième report; and I can give the Commission a table of the results by the millième report which each

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assayer gave of the 20 bars, and a comparison of them; and I am also able to add the reports given by the Queen's assay master at the Mint. With the permission of the Commission I will hand them in. (*The following paper was handed in.*)

"Particulars of an experiment made on 20 bars, separate assays of which were made by each of the five assayers recognized by the bank, and by the Queen's assay master at the Mint.

Mint Assays.	Bars No.	Assayers. A.	B.	C.	D.	E.	Agreements.	Maximum Difference in Tenths of a Millième.
997·4	15	997·3	997·1	996·9	997·4	997·4	2	·5
997·6	16	997·8	997·8	997·6	998·5	998·	2	·9
997·6	17	997·8	997·9	997·5	997·2	997·9	2	·7
997·7	18	997·4	997·5	997·7	997·5	997·6	2	·3
996·7	19	997·	997·	997·	997·4	997·2	3	·2
996·3	20	996·3	996·4	996·4	997·	996·1	2	·9
997·4	21	997·6	997·8	997·2	997·8	997·8	3	·6
998·1	22	998·	997·4	997·6	997·4	998·	2 2	·6
997·4	23	997·5	997·5	998·	998·	997·8	2 2	·5
986·6	24	987·	987·1	987·4	987·4	987·2	2	·4
990·4	25	989·8	989·1	989·4	989·8	989·3	2	·7
984·8	26	985·	984·8	985·4	985·6	985·	2	·8
986·1	27	986·2	986·3	986·1	986·8	986·3	2	·7
989·	28	989·	989·3	989·4	989·8	989·4	2	·8
988·3	29	988·6	988·5	988·8	989·1	988·7	–	·6
984·9	30	985·3	985·	985·4	985·3	985·1	2	·4
980·2	31	980·6	980·6	980·8	980·6	981·	3	·4
978·1	32	978·8	978·	978·1	978·6	978·1	2	·8
979·2	33	979·8	979·5	979·9	980·	979·5	2	·5
977·9	34	978·8	977·9	978·9	978·8	978·3	2	1·0
							Average	·6

A comparison of the several millième reports of the five assayers gives the following results:

In reporting on the 20 bars to tenths of a millième,
In no case did all five assayers agree.
In no case did 4 out of 5 „ „
In three cases 3 „ 5 „ „
In sixteen cases 2 „ 5 „ „
(In two of which two and two agreed and one differed from the others.)
In one case all differed.

The maximum divergence varied between $\frac{2}{10}$ and one millième, the average divergence being above $\frac{6}{10}$.

The following table shows how many times each agreed with each, and how often each disagreed with all the others.

Assayer.	B.	C.	D.	E.	Disagrees with all.
A.	4	1	3	2	11
B.	–	2	4	4	9
C.		–	2	2	14
D.			–	2	10
E.				–	11

The assay pieces sent to the five assayers were all taken from the same part of the bars. Their assays were subsequently compared with those of the Queen's Assay Master, when the bars were sent in to the Mint, and the portions tested by him were, probably, taken from a different part of the bars. As compared with his reports the maximum divergence in one case reached 1·3 and the average maximum divergence exceeded $\frac{7}{10}$ of a millième. His agreements were:

With A.	B.	C.	D.	E.	Disagreements with all.
2	2	4	1	2	11

These results seem to point to the conclusion that any method which aims at reporting closer than $\frac{1}{2}$ a millième, is not to be depended upon.

365. The conclusion which you draw from that is that it is almost impossible in that very minute assay to attain strict accuracy?—Yes, it is not to be relied upon.

366. If you think that the millième report is carried to too great minuteness, how far do you think it could be carried?—That is a question upon which I scarcely feel competent to give an opinion, as it is one which mainly affects the bullion trade; I believe that the assays may be relied upon to the thousandth part, that is to say, the millième without the $\frac{1}{10}$ millième; but much beyond that I do not think we are safe. I may mention that in France they have a table in which they put down every tenth of a millième, beginning with one thousand parts, or absolutely pure gold; the next would be 999·9, the next 999·8, the next 999·7, and so on, and they have fixed the price at which the bank buy gold on tenths of millièmes, assuming that the assaying to tenths of millièmes is accurate. I am strongly of opinion that to go to such minuteness as that would be very fallacious.

367. You think that half a millième is about the limit?—Half a millième is about the closest that any dependence could be placed upon.

368. And you would not consider, positively, that you could attain accuracy even as far as that?—No, we find that accuracy is not attainable, there are always differences between different assayers.

369. If a change were made in the weight of the sovereign, would you propose that all the old sovereigns should be called in at once, or that the old and the new sovereigns should circulate together?—If a change were made, I would make the new sovereign as nearly as possible the exact equivalent of the present sovereign, although I do not advocate such a change. I do not think that it would be necessary in that case to call in all the old ones, although it would introduce a certain amount of difficulty and confusion.

370. The International Coinage Commission considered, did they not, the question of withdrawing the whole of the present gold coinage?—Yes, they did so in connexion with a proposal, which would have affected the value of each sovereign, about 2*d.*

371. Can you explain to the Commission what that proposal was?—I only know it from their report. It was a proposal to alter the value of the sovereign, so that it should be an exact equivalent of a 25 franc piece.

372. What would the exact difference in value be?—About 2*d.* in each sovereign, which would be an appreciable difference in a single sovereign, and a very important difference in large transactions.

373. Do you think it would be practicable, although it might be inconvenient, to call in the whole coinage?—It is quite practicable.

374. Are you of opinion that the inconvenience of having two classes of sovereigns would chiefly arise when the coins came to be worn, and that there would be two lowest current weights?—Yes.

375. In your opinion the best way of meeting that would be to coin sovereigns of different size?—That was suggested to me by Dr. Farr as one mode in which it would appear possible to meet the difficulty, for it is a difficulty which would have to be met, because we are obliged, of course, to withdraw sovereigns when they get below the current weight. The present lowest current weight of a sovereign is about 7·938 grammes. I suggested that the lowest value of a sovereign of eight grammes, 915·3 fine, should be about 7·950, so that the two could not be tested indiscriminately by the same balance, which throws out the heavy from the light.

376. If that were adopted, you would have to make one sovereign larger and thinner than the other, would you not?—Yes.

377. Because the mere difference in value would not make any appreciable difference in the size?—Quite

so. You would have a larger and thinner one, and a smaller and thicker one, so that they could be sifted.

378. Do you not think that that would produce great confusion in practice, because people would never look at every sovereign to see which it was, if they imagined that the value was very nearly the same?—I imagine that if it were well understood that the value of the two was exactly the same, they would pass without difficulty, and people would accept them readily.

379. The value would not really be exactly the same, because they would be worn down differently?—They would be both subject to the same process of wearing.

380. The lowest current weight would have to be different?—Yes; it would affect such establishments as the Bank of England, where we are bound to take care that the light sovereigns are not re-issued; but it would not affect the public very much in any way I think.

381. Do you not think that amongst the less intelligent class there would be a difficulty if there was a difference in the weight of the two classes of sovereigns?—There would always be a difficulty, I presume, in overcoming any prejudice amongst the lower classes in introducing any new things of the kind; it must always be done by a compulsory enactment, I think.

382. (*The Master of the Mint.*) You have mentioned, I think, that the Decimal Assay Report was not made to the Bank?—The Decimal Assay Report is always noted on the assay paper, as a memorandum; but it never enters into the calculation of the value, it is merely a memorandum; it is never used except simply for the purposes of curiosity, or to test the assays, or for comparisons; but, as between the Bank and the public, it is not used.

383. You say that the assays need not be carried beyond the millième, judging from the discrepancy of different assayers; but with regard to your accounts with the Mint is the assay not carried much further than that?—It is carried much further by the Mint. The assay is carried I believe to the $\frac{1}{5760}$th part. I stated that about half a millième was the closest report I could recommend.

384. So that there is no practical difficulty, inasmuch as the Bank insists upon the Mint accounting for its gold to that small proportion?—That is the understanding between the Bank and the Mint. As to whether the Bank insists upon it, I scarcely know the origin of it, it is of such old standing; but it is the understanding between the Bank and the Mint that they carry to the $\frac{1}{5760}$th part, and that is considerably beyond one half a millième.

385. Would there be any difficulty in following the same system in the trade; it is the mere habit of the trade going by steps?—Yes, that is so, it has been the rule of the trade; of course it might be altered, and it might be carried to a closer figure than the trade report does assay at. My remarks were more directed against our adopting the French system in its entirety and going to the $\frac{1}{10000}$th part.

386. It might not, perhaps, be quite so convenient in calculation, but seeing that the result must be in the end an average of the truth, if you take the $\frac{1}{10000}$th part, would not it, do you think, be better to follow the same practice as you do with the Mint in calculating the value of the gold?—It would be quite possible to do so, and as you say, probably an average would be arrived at which would make very little difference as compared with the present system.

387. And the other would be the more accurate system?—Yes, it would profess to be the more accurate system undoubtedly.

388. (*Professor Miller.*) In the event of a sovereign being adopted having a larger amount of alloy, and weighing eight grammes, would not the date be sufficient to prevent any confusion, that is to say, supposing such sovereigns were coined next year, would not the circumstance of the one set of sovereigns having a date less that 1870, and the other set of sovereigns having dates of 1870 and higher be quite sufficient to prevent any confusion arising from the difference of weights occasioned by the larger amount of alloy?—It would be perfectly impossible in the enormous transactions of the Bank of England to pick out the sovereigns by their dates, and to separate those of the one quality from those of the other quality simply by the dates. We weigh about 20,000,000 pieces in each year, separately and singly, and if each one had to be examined to see what the date was, I think that it would probably treble our labour.

389. That would be for a short time, for a few years only?—For some years it would be a very cumbrous mode, and I believe almost practically impossible, because the date on a sovereign is very small, and it requires a very good sight to tell the date at a glance. You cannot sit at a table and separate them as they lie before you; you must take up each sovereign, turn it the proper way, and look at it closely before you can find out what the date is, it is so minute.

390. Cannot some different device be contrived without changing the size and the thickness?—That would be possible no doubt, but the difficulty is that sorting the sovereigns of one kind from another, is all additional labour that must be done, and if they were of a different size, you could get them perhaps run down into a groove where those of one diameter would fall through, and those of another would not; for practical purposes, and as simplifying the mode of sifting the coins, the difference in diameter is to my mind the simplest mode that could be adopted. Any other mode I think would be much more cumbrous. I have not heard any better suggested.

391. A very small difference of diameter, I presume, would be sufficient to affect that sifting?—I have not gone into the question so closely. That is a practical question which I should think the Master of the Mint would perhaps be better able to decide, but it would require to be an appreciable difference that would enable them readily to be separated from one another.

392. (*The Master of the Mint.*) Were gold coins larger at one time than they are now?—Yes, I believe they were.

393. (*The Warden of the Standards.*) When was the change made?—The last change was upon the introduction of the sovereign, the guinea having been a coin of an appreciably larger diameter.

394. (*Chairman.*) But then it was of a different value?—Yes.

395. Have coins of the same value been reduced in size?—I do not know.

396. Have they not been made thinner and larger, or thicker and smaller?—No, not since the introduction of the sovereign.

397. (*The Warden of the Standards.*) Were there not some half-sovereigns of two different sizes in circulation at one time?—I am not aware of it.

398. (*The Master of the Mint.*) There were some, but the number of the smaller size was not great?—I was not aware of it; it has not been within my experience, it must have been very long ago, about the time of the first issue, and I was not aware of it.

399. (*Professor Miller.*) Is there any great practical inconvenience in expressing the assay to the 10th of the millième?—None whatever in expressing it, or in calculating it.

400. Then there is no great harm in expressing it arithmetically with an accuracy a little greater than that which can be arrived at by weighing?—None whatever. Tables could be quite easily made to accommodate the one system or the other. There is one slight disadvantage, I think, in adopting the Millième Report which occurs to me, that if we altered our standard in any way so as to be merely expressible in millièmes, and not in a simple vulgar fraction, you lose that mode of calculation. At present the standard of $\frac{11}{12}$th fine is a very simple one to carry in the head and to calculate from. If you adopted a Millième Report, which was not expressible in a vulgar fraction, you would lose the facility of calcu-

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lation that you have from having both methods at your command.

401. (*The Warden of the Standards.*) Do you happen to know the metric weight of the Napoleon or 20 franc piece in France?—I believe it is 6·45161 grammes.

402. (*Sir J. S. Lefevre.*) Then altering the sovereign to the weight of 8 grammes would not simplify the decimal relation between the sovereign and the Napoleon?—No, in no way.

The witness withdrew.

ANDREW JOHNSON, Esquire, examined.

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403. (*Chairman.*) You are chief clerk, are you not, of the bullion office in the Bank of England?—Yes.

404. Have you considered the subject which is before the Commission, of the proposal to abolish troy weight and to substitute the metric system for it?—The subject has been mentioned to me and I have arrived at an opinion; but this opinion is to be considered a strictly personal one, though I am allowed by the Governor of the Bank to give expression to it.

405. Have you considered how far it would affect the bullion transactions of the Bank?—The question hardly admits of a direct answer, because until I know the exact nature of the change, I could not tell. To begin with, it would affect the terms of purchase on which gold is bought by the Bank, because no absolute equivalent is attainable in metric weights to agree with the parliamentary terms upon which the Bank buys bar gold, so that I cannot answer the question as to the ultimate effect upon the trade, until I know what is to be substituted for the present expression that an ounce of gold of standard quality means 3*l.* 17*s.* 10½*d.*

406. There of course is a metric equivalent to that, but it is an inconvenient decimal?—There is no such thing as a metric equivalent, there is a very close approximation.

407. The troy ounce is equal, is it not, to 3·11035 dekagrams?—Yes; but when you have run a decimal down to five figures and they do not end with a terminal one there is certainly no absolute equivalent.

408. Can you state how far the substitution of metric weight for troy weight would affect the computation of the assay of the gold and silver and the consequent quotation of value?—My answer must be limited by a similar guarding. Of course where the metric system is in use, as in France, they have certain limits of fineness to which they will report, and those limits are entirely different in France to what they are in England, and are carried a great deal farther, so much so, that we define only to the $\frac{1}{768}$ part, that is to say, we report the fineness of gold to the $\frac{1}{768}$ part which is $\frac{1}{8}$ of a carat grain, whereas the French report to the $\frac{1}{10000}$. At any rate the French profess to assay to the $\frac{1}{10000}$ part of fineness, and in England we do not profess to report to more than the $\frac{1}{768}$ part, so that you see the divergence is enormous. Then again it is the custom of the English trade in weighing bar gold, to weigh to a turn of the scale, which represents 12 grains, and fractions of 12 grains are not accounted for, whereas in the French system they weigh to the $\frac{1}{10}$ of a gramme. There is a wide difference between 12 grains and the $\frac{1}{10}$ of a gramme, so that any question which is directly put to me as to how the change would affect the interests of the profit and loss of trade cannot be directly answered, until you tell me to what extent the turn of the scale shall be affected and to what extent the report of fineness shall be affected.

409. You mean that if Parliament determined to substitute metric weight for troy weight it would be necessary in the Act of Parliament to alter the conditions under which the Bank of England is at present placed?—If that were not done by Act of Parliament it would be done by higgling in the business, and speedily arranged, and no doubt it would be arranged between the Bank and the great bullion dealers, provided they remained in the same relations as exist now between them. It would be highly probable that the bullion dealers would make a great stand that we should weigh as close as they do in France. The difference in value between the turn of the scale in England and the turn of the scale in France is considerable. In England, the turn of the scale amounts to 2*s.*, that is to say, we turn to 12 grains which is equal to 2*s.*, whereas in France they turn to $\frac{1}{10}$th of a gramme, which is only equal to a grain and a half or 3*d.* In England, they assay to the $\frac{1}{768}$th part; in France they assay to $\frac{1}{10000}$ part, or the $\frac{1}{10}$th of a millième; $\frac{1}{768}$th represents in England upon an ounce of standard gold 1·325*d.*; in France the $\frac{1}{10}$th of a millième represents only $\frac{1}{10}$th of a penny. A different turn of the scale in the transactions between the Bank and the Mint gives rise to a certain protective margin, which results in a small profit to the Bank of England.

410. Is the present practice of weighing in this country customary, or is it specified by law?—It is customary.

411. Do you think that a totally new system of computation would cause much confusion and inconvenience?—Of course, to me personally, and to all persons engaged in large transactions, such as bullion brokers, or by large exchange merchants who have to balance their payments by bullion from time to time, it would be of very little consequence whether we made our calculations by Hindoo, Chinese, metric, or any other system, because, if we were not already capable of carrying it on upon any system that was imposed upon us, we should soon be obliged to become so, and also persons who are engaged in the larger departments of the trade are already sufficiently educated to accommodate themselves to any difficulties thrown in their way, or have sufficient education soon to become so; so that the Bank and those who have direct transactions with the Bank would immediately accommodate themselves to any alterations. But such is not the point. The Bank represents the million sterling, but what becomes of the million persons? As far as the millions sterling are concerned, of course the metric system is an admirable thing, but as far as the million, looking upon it as population, is concerned, it is another affair altogether. I think the experience of the Bank is very clear upon the point in this respect. In 1853 we abolished the system of weighing in lbs., ounces, pennyweights, and grains, and we substituted for it the system of weighing in ounces and decimal parts of ounces. That was what was called the small end of the wedge. Of course it was very much more convenient to us to weigh in that manner, because the calculations were a great deal easier, and any tables are much more easily constructed, and more easily used; in fact it is a more scientific and a better method; but there is not a single person connected with the trade who has adopted the system, except in his direct relations to the Bank of England. It has not crept round into Clerkenwell. You do not find any watch-case maker ever trouble himself about it. He knows nothing about weighing in ounces and decimal parts of ounces. He has got his old established book which serves him as a dictionary, and he finds that he has got a certain weight and a certain fineness, and he calculates the value as he looks out for a French word, when he wants it, in a dictionary; he no more knows how to work upon any other system whatever than he knows how to fly. With regard to this matter, I say that the Bank have really virtually nothing whatever to do with it, the Bank are not the persons who determine that the troy ounce should be used; the Bank are obliged to use it simply and solely because the sovereign, the pound sterling, is estimated in terms of troy weight.

412. You mean that the troy weight is the whole basis of our present currency?—Yes; therefore we cannot get rid of troy weight unless we choose to get rid of the only existing definition of a pound sterling; you must have a new definition for the pound sterling if you get rid of troy weight. As regards the metric system, assuming the metric system to mean the French metric system, because a system may be metric without adopting the metre, its decimal division is the only part about the system that is worth anything, for there is no supernatural excellence in the metre as compared with the inch, there is no inherent propriety in the metre; the only advantage of the metre over the inch is, that it professes to be a certain division of a quarter of the earth's circumference, which is a pure profession and absolutely useless for any purposes except this, that in the event of the real standard to which appeal is to be made, such as you have in this house, being destroyed, it could be recovered by a scientific measurement of that quadrant of the earth's circumference. But 100 years hence, if it were necessary to reconstitute it by a fresh measurement, it would, I believe, be measured in such a different manner that the result would differ from the present one.

413. Do you think that the trade generally in their profits would be much affected by a new system of computation?—No, I do not see how they should.

414. You think that the matter would adjust itself?—Quite so. If the new system brought with it an increased closeness of weighing it would affect certain profits which exist now in composition and division; I mean where a certain quantity of weights are thrown together with a certain minimum of turn. For instance, suppose I have 12 weights to take for as many purchases and one weight to sell, and I have a margin of 12 grains upon each of the weights that I bought and have to give a margin of 12 grains only upon the one I sell, it is probable that I should make a profit of six grains each upon 11 of those purchases; so that it depends upon the relative magnitude of the purchases and sales whether there is a profit or not.

415. You are aware, are you not, that some very valuable information has been communicated to us by Mr. Forbes?—Yes, I have read Mr. Forbes' papers.

416. It is impossible, as I understand, that you should have any exact correspondence of weight and quality with a new definition given to the value?—Yes.

417. The equivalent metric decimal of the troy ounce is a very inconvenient one, is it not?—Yes. The object to be attained in any change from the English to the metric system seems to me not the attainment of the unit, but the attainment of a system of dividing the unit whatever it may be. Then again, in my opinion, unless we have it completely and universally obligatory, it is not worth our while to make any effort at all, because, by the results which you have already seen of 17 years of experience, the alteration made by the Bank has never exercised the slightest influence upon any persons except as they are obliged to come in contact with the Bank. The small end of the wedge appeals to the imagination, but it is forgotten that the small end of the wedge will not go in without blows any more than if it were not the small end; the small end of the wedge has no tendency to go in of itself, you must have blows. And upon the general system my opinion is that it is one of those cases in which half a loaf is decidedly not better than no bread.

418. It would produce confusion without any good result?—Yes.

419. Mr. Forbes gave us some calculations as to the divergence from the present system which the metric system would occasion, do you agree with him?—Mr. Forbes has taken the trouble to ascertain the nearest equivalent in the proposed system for the sovereign in the present one, and he has arrived at this result, that only by increasing the weight and lowering the quality of the sovereign can you come within anything like a close approximation. The approximation by those means is singularly close; but in doing so it would be necessary to alter the whole definition of the unit of value. By making the sovereign a little heavier and a little coarser you can bring it very nearly to the value of the existing sovereign, so that you do not find the difference until you get to tens of thousands of pounds, but there is no convenience in that. If the metric system is worth having at all, it is worth having for the simplicity of its division, and not for the sake of the unit, or to afflict ourselves with such frightfully awkward decimals as 915·3 for the standard.

420. The difference between the two would only be found when they came to the lowest current weight?—The lowest current weight of the new sovereign must be greater than that of the present one, which would present enormous difficulties in the process of testing the coins.

421. Do you think that it would be inadvisable to deal with the question of troy weight unless the coinage was dealt with at the same time?—I do not see how it is possible.

422. Of course the value of the sovereign will not be altered; but unless a decimal coinage was introduced you do not think it would be desirable to have a decimal scale for the value and weight of gold?—With respect to the whole question it seems to me that the point is not what is the nearest equivalent in the new denominations to those prevalent under the existing ones. Absolute equivalents are unattainable. The question is not one of arithmetic, but of political prudence, and it resolves itself into the very commonplace one of, are the advantages of a uniform and homogeneous system, which are unquestionable, worth the trouble, confusion, and distress that the adoption of the metric system must bring with it to the poor, to the uneducated, and to the petty trader? The imperial and the metric systems are not to be compared intrinsically in themselves if no collateral considerations are attended to. But while the change is taking place, which means for at least 30 years, in my opinion the interests of the million are sacrificed to those of the millionaire; the interests of the present generation or the vastly greater part of it, that is to say, the uneducated part of it, are sacrificed to the interests of the future generation, who can be brought up in accommodation with the system. The interests of the retail trader are sacrificed to the interests of the wholesale trader. It is a cosmopolitan system, and the interests of the domestic trader are sacrificed to the interests of the foreign trader, and the ignorant are sacrificed to the instructed, because the instructed know very well how to manage; but the ignorant do not. In every case it seems to be a call to those who are unprepared to come up hither. But in my opinion no call would be effective; the whole thing must be done authoritatively and at once, or not at all.

423. Have you considered the question of the Millième Report, whether it would be desirable to adopt the system of report existing in France?—I do not believe in the Millième Report as expressed in the French Reports. They profess to report to the $\frac{1}{10000}$th part. I do not believe it is humanly possible to do it. I am going to send an ounce of gold to Paris, with the view of trying it through the ordeal of the Bank of France; but I have tried it here in England by assayers in this way. I have taken an ounce of fine gold quite recently. I had it melted myself and cut it into 20 pieces, and I sent it to five assayers, each of them having four assays, and there was only one assayer who agreed with himself. The extent of difference among themselves amounted to $\frac{1}{10}$th of a millième and $\frac{2}{10}$ths and $\frac{4}{10}$ths of a millième, and the extreme difference between the five amounted to $\frac{5}{10}$ths of a millième. This convinces me that it is barely possible to assay closer than $\frac{2}{10}$ths of a millième. I think that is the closest that can be expected. We go as close as that at the mint. The trade goes only as far as the $\frac{1}{768}$th part

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which is $\frac{1}{8}$th of a carat grain; but the Mint in assaying for the Bank of England assay to the last grain. They assay to the $\frac{1}{3760}$th part, which is the last grain in the pound troy, so that in point of fact I believe the Mint go as close as it is possible for any person to be relied upon to go.

424. You stated the inconvenience which you foresaw to the small trader and the mass of the public from the change, but do you foresee much inconvenience to the bank from the necessity of the bank expressing the buying price of gold in metric terms?—It would be extremely inconvenient if the English standard were left as it is, we could no longer buy gold at so much per ounce, we must buy it at so much per kilogramme or so much per gramme. There must be a new Parliamentary price established for the bank to buy bar gold, because the price of gold is not like the price of other things; it is not a price at all. The Parliamentary price of gold is not a price in the sense in which price is expressed in all other economical relations, it is only a certain common form of saying the same thing; it is an equivalent denomination; 3*l.* 17*s.* 10½*d.* is not the price of an ounce of gold, but it is the number of gold coins that can be made out of an ounce, which is a very different thing. For want of observing this simple fact, currency pamphlets have been written upon the subject which would have been much better burnt. One of the greatest advantages of a change from the present system, in my opinion, would be that we might make our unit of value coincident with the unit of weight. If that were the case we should be in the position I think of the Spaniards, in whose country an ounce of gold is the same thing as a doubloon. Persons could not talk about the price of gold because the price would be known to be the weight whatever it was. The whole question is an educational thing, but we are a very long way off having learnt our lesson.

425. The difference between the bank buying price of gold and the Mint rate would be about 4*s.* per kilogramme would it not?—Yes, it is 4*s.* 0½*d.* per kilogramme.

426. It would be necessary would it not to have that fixed by Parliament in different terms?—Yes, undoubtedly.

427. Therefore you think that to the bank the inconvenience would not be so great, supposing it was specially provided against in this matter, but the mass of the people would be greatly inconvenienced?—Very greatly.

428. As far as the bank is concerned legislation might meet the difficulty?—There is no doubt whatever that the bank could adopt that or any other system if it was necessary. It is a thing in which the interests of the world at large are to be considered and not those of the Bank of England, which is quite able to take care of itself.

429. (*The Master of the Mint.*) You find a difficulty in regard to the change arising from the customs of the trade?—Yes; of course the customs of the trade would have to undergo a complete revolution, because all the points which are customary both in the turn of the scale and in the degree of quotation, and in the manner in which gold and silver are reported, would then be changed and be simplified, and some amount of profit which is now got out of the mysteries of the craft would evaporate with the clear light which would be thrown upon the whole affair.

430. But those customs could be accommodated, could they not, in some degree to the change to the decimal system?—There is nothing whatever to which persons do not accommodate themselves if they are obliged.

431. Most of the customs are in fact barbarous, although your weighing should be carried to the utmost limit of accuracy; and yet, in point of fact, you dispense with those customs when you have a flexible body to deal with like the Mint, and you exact both in weight and fineness to the utmost possible extent?—It amuses me to find that the Master of the Mint calls himself flexible when it is the Master of the Mint who is at the bottom of the whole difficulty. The Master of the Mint says, "In my relations with "the Bank and in theirs with the bullion trade we "find that troy weight is so and so," but it is the Master of the Mint who makes that necessary by his definition of the pound sterling. The Bank have nothing whatever to do with it. The whole thing lies at the Mint. The Mint says that the pound sterling is such a troy weight, and then when everybody who has to deal with the pound sterling and with its constituents is obliged to accommodate himself to the Parliamentary definition of the pound sterling, he says that he is a flexible person, and that other persons make the difficulty. It is entirely his business from beginning to end. How are you to get rid of troy weight without getting rid of the definition of the sovereign?

432. I am speaking not of the legal part of the question, but merely of the customs of the trade?—But the customs of trade accommodate themselves to the actual circumstances; they care nothing about theories; they accommodate themselves by a beautiful determination to take as little trouble as possible; they do not even take the trouble to understand their work. Out of 7,000 persons who are said to be connected with the precious metals in some degree, I do not believe there are 20 who, without the assistance of tables, could do their work. I do not believe that there are 20 out of the whole 7,000 who are acquainted with the theory, and who, if they were put down with a simple pencil and slate, would not be as helpless as a child. I am sure it is the case with the bulk of the persons who do business with the Bank of England, and much more so in Clerkenwell.

433. (*The Astronomer Royal.*) From what countries does the principal part of the gold come which is received in the Bank?—It comes from every part of the world, and it depends upon the balance of our trade with certain parts. Of course the great tendency is that it should come from the countries of production where it is absolutely found, from California, from Australia, from Africa, and from Russia. But then the natural tendency of gold to leave the country where it is produced, is interfered with by the balance of trade between those countries and England.

434. In the purchase of gold from Australia, of course the same system of troy weight or metric weight, as the case might be, would be used in both countries, and there would be no inconvenience in any change, because the change would be made in both countries?—That is a point which I think is very well to consider, but I am not by any means personally clear upon it. I am not a lawyer, but it seems to me very far from clear that if we did resolve in England to establish metric weight, the parliaments of Victoria and Adelaide would be obliged to do so too.

435. Where are the assays made for the bank purposes?—The assays are made by persons whose assays the bank chooses to take, and at present there are five of them. One is Professor Miller at King's College, besides him there are Mr. F. Claudet, Mr. Griffiths, Messrs. Johnson and Matthey, and Messrs. Johnson and Sons.

436. It may be assumed that the bank has so much control over those assayers that no question of difficulty would arise as to the nature of the scale to be employed?—So far from that, the Bank is assumed to have no control whatever, because the report which is given in by each of those assayers of the degree of fineness of the bar is the basis upon which we purchase it, and in practice it amounts to this, that the persons who sell us gold are usually persons so largely interested in it that they have a private assay made before they offer it to us, and if the report upon which we propose to buy it disagrees to their disadvantage with the one which they have already privately made,

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they will say, we should like to have another assay, and the Bank allows them to do it, at their own expense, which costs them 4*s.* 6*d.* for each bar of gold. If they succeed in getting a better report, they may make a profit of 1*l.* upon each bar; and since the Bank has been in the habit of giving them both the trade report in carats and grains and eighths and the corresponding millième reports of the assays made, they have been able to see that one millième report hovers upon another, which would carry it over and cause it to be quoted a whole eighth or $\frac{1}{768}$ better; so they speculate upon that, and they are perfectly right to do so. Then also they know the tendency of different assayers; they know that certain assayers have a tendency to report more favourably to the sellers than others have, and if they see that the millième report hovers, as I said before, upon the turning point, they will then pay 4*s.* 6*d.*, and run the chance of getting it quoted as an additional $\frac{1}{8}$th carat grain. It may occur that $\frac{1}{10}$th of a millième will give them the turning point on the $\frac{1}{768}$th, and then they get, not simply the $\frac{1}{10}$th of a millième, but virtually in payment they get the whole millième and $\frac{3}{10}$ths, so that the existing system is not so uniform as if we reported to the millième and tenth of a millième, as the Bank of France does, giving credit for every one tenth of a millième; although it may be doubted whether a closer report than $\frac{2}{10}$ of a millième can be relied on.

437. (*The Master of the Mint.*) As in fact is done in your transactions with the Mint?—Yes, and I think we go close enough, as close as human beings can depend upon, for I believe it is a question of temperament and temper when they make their report.

438. (*Professor Miller.*) Much gold does not come from Brazil at present, does it?—No, not at present.

439. Is that on account of the scarcity of gold or the badness of trade?—Brazil never was a very copious source of supply. The St. John Del Rey mines, the Maraquita mines, and one or two others of that description produce some, but it was never a very copious source; the St. John Del Rey tumbled in the other day. We do get it from time to time, but not in any quantity worth considering as compared with Australia and California. I think we get as much from Africa now. I speak only in a vague general way; I cannot say for certain. I have not looked into the matter with a view to forming a definite opinion.

The witness withdrew.

Adjourned.

Wednesday, 16th June 1869.

PRESENT:

LORD COLCHESTER IN THE CHAIR.

THE RIGHT HON. STEPHEN CAVE, M.P.
THE MASTER OF THE MINT.

PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. HENRY SKINNER examined.

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440. (*Chairman.*) Are you a member of the firm of Webb and Skinner, scale, weight, and weighing machine makers, at 185, Union Street, Borough?—Yes.

441. Do you supply local imperial standard weights for the use of inspectors of weights and measures?—Occasionally.

442. And does your firm construct them?—Yes.

443. Of what metal are those standard weights generally composed?—Brass, pot metal, and a variety of metals.

444. Is it arbitrary, or by what rule do you go, as to the metals of which you compose them?—It all depends upon the nature of the order. Sometimes they are yellow brass, sometimes they are what is termed pot metal, and sometimes they are gun metal.

445. What is the average cost of a set of local standard avoirdupois weights of each description of metal?—I should say that they vary from 15*l.* to 20*l.* the set, 56 lbs. to $\frac{1}{4}$ drams, exchequer stamped and engraved.

446. That is what you furnish to the inspectors?—Yes.

447. I suppose they require a complete set corresponding with the weights they will have occasion to inspect?—Yes, and to stamp, down to half a dram.

448. Do they vary in price according to the metal?—Yes, according to the quality of the metal and their shape and finish.

449. Have you sometimes an order for one metal and sometimes for another from the local authorities?—Yes, precisely so, principally for pot metal.

450. Do you make any sub-standard weights for Great Britain or for Ireland?—Sometimes. Of course they are not so expensive; they are made of the same material, roughly finished.

451. Are they made for use in Ireland, or in Great Britain also?—Yes; sometimes they are required for other places, for instance, India and the colonies.

452. But they are not used in England, I suppose?—Yes, they are sometimes when an extra set is required.

453. It has been suggested to the Commission that it might be desirable to use galvanized iron weights as subsidiary standards for local inspectors. What is your opinion of that proposition?—Galvanized iron will take the salt and acids that would be around it in the various shops, and becomes corroded. In a short time the weights would always have an oxydized frosty covering on them, which would come off upon the fingers. If they were turned in a lathe and made clean, and tinned with the best pure tin, they would look bright and wear much better than if galvanized. The expense of doing so would make them nearly equal in price to the pot metal standards now used.

454. Do you re-adjust local standard weights before they are sent to the Standards Office to be reverified. I mean the weights used by the local inspectors?—We have occasionally done so.

455. But you have not been in the habit of having them frequently sent to you for that purpose?—No, we have not been fortunate enough for that.

456. But you have had them sometimes sent to you?—Yes, we have had whole sets occasionally.

457. When they have come to you, in what condition have you found them?—There have been trifling variations. Those that were most used of course were most deficient.

458. When you say that you are not fortunate enough, you mean that the local authorities for whom you have made weights do not always send them to you for re-adjustment?—No, they do not. We have had them sometimes from those who had been our customers previously. They vary according to the amount of use that they have had. For instance, the 28 lbs. is a weight that very frequently runs light, because it gets used a great deal, and the smaller weights are more deficient, because they are used a very great deal. Where the larger class of weights, up to the 56 lbs., are used once, the smaller class of weights, from 14 lbs. down, are used a thousand times.

459. Do you find that they have been altered or adjusted in the several localities without coming to you?—I think not.

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460. Do you never find that anything of that kind has been done without reference to you?—Not as a rule. There might be exceptions, but I do not think that there are many parties that could possibly do such a thing. They have not the necessary appliances for doing so. They would require other standards themselves, and they would not go to the expense of a set of standards for that purpose only. I am not aware that such a thing has been done.

461. Can you give the Commission an idea of the greatest errors that you have found in these local standard avoirdupois weights?—I have no memorandum upon that subject, but I should say that it would not be a great deal. I should say, perhaps in half a hundredweight it might have varied from a quarter of an ounce to half an ounce, and so on downwards in proportion. It entirely depends upon the length of the time that has elapsed since they were previously adjusted.

462. Do you know how long they usually are without being adjusted?—I have heard instances of their being 20 years.

463. Are you engaged largely in the sale of commercial weights or weights used for buying and selling?—Yes.

464. Do you manufacture those weights?—Yes, we do, in large quantities.

465. Of what material are the avoirdupois weights of that kind composed?—Of iron and brass principally.

466. Which is the most popular for ordinary use?—The iron for commercial purposes.

467. In what proportion should you say the iron weights that you make are to the brass weights?—There are a great many small brass weights made, and if we take them into consideration, I should think that they are about equal in numbers. But as to the large weights, very few are of brass; not 1 per cent., I think.

468. Including the greater number of small weights, what would be the proportion?—Including the small weights, I think they would be about equal in number.

469. As to the form of those weights what shape do you recommend?—There are a variety of shapes. There is the square ring weight, which we may term the universal weight; that is the most usual, and the most convenient.

470. Do you make any spherical weights or bell-shape weights?—Yes; the bell shape are made of iron and brass, and the spherical are all made of brass or gun metal.

471. Are many of them used?—Yes; they are used in shops from 14 lbs. downwards, made of bell shape in brass.

472. Do you make any hexagonal avoirdupois weights?—No; they never have been made in England.

473. But the square shape with a ring is the common shape?—Yes, the square ring is the useful weight, and the brick weight is also a very common weight; that is four-sided, and narrower at one end than the other, and it has a handle in the centre to lay hold of; it is a very useful light weight for large scales and weighing machines.

474. Of what size are those weights?—56 lbs. and 28 lbs.; they run all sizes, from 56 lbs. down to $\frac{1}{4}$ lb.

475. As to the proportional number of each shape, of course the shape that is used for the small weights is much the commonest, I suppose?—The greatest quantity in use are square weights with rings.

476. In what proportion do you think?—I may say 2,000 to one of other shapes.

477. What is the price that you charge for a set of weights of each description?—A set of iron weights from 56 lbs. to $\frac{1}{4}$ lb. about 17*s.* 6*d.*

478. What are the prices of the smaller weights?—The price of a set of bright brass weights from 1 lb. to $\frac{1}{4}$ oz. is 4*s.* 6*d.*

479. Are you in the habit of adjusting commercial weights from time to time?—Yes, we adjust a great many. We have contracts on our books for from 900 to 1,000 shopkeepers and warehouses yearly.

480. In what condition do you find them when they are brought for adjustment?—It entirely depends upon the nature of the trade in which they are used. In some places they are very light.

481. Can you give us any idea as to the state in which you find the weights of different traders?—Those of butchers and cheesemongers are about the worst, and grocers come next; their brass weights get light in a short time.

482. What is the largest amount of error that you have found in them?—In a set of weights of 14 lbs. down, used in a cheesemonger's shop, where there is salt and other corrosive material, I should say that in three months by use and corrosion a 7 lbs. weight might get two drams short, and so on downwards in proportion.

483. Do you find that, generally, the weights have been fairly used?—Yes, generally fairly used.

484. Have you never found evidence of their having been fraudulently tampered with?—The persons who come to us to have their scales and weights adjusted by the year are not the class of persons who would tamper with them; it is the unprincipled traders that do that.

485. Is not that done by the small tradesmen?—Yes; by people who keep small shops, as well as large.

486. You find, as far as your experience goes, that they are fairly used?—Yes, generally, quite fairly used.

487. What is the usual cost of the re-adjustment of a set of weights?—We can re-adjust a set of weights, 14 lbs., down to the quarter of a pound, and re-stamp them, for 4*d.* each, or about 2*s.* 8*d.* the set.

488. Are they always adjusted and stamped by the inspectors before they are re-issued?—The inspectors in London never adjust any. The country inspectors do so, but it is a very bad plan.

489. What is their plan?—It is a very bad one. You appoint an inspector and make a public officer of him, and pay him a handsome salary, and you furnish him with a set of standards and scales which are very valuable things, worth from 150*l.* to 200*l.*, and he turns his inspecting office, in which there ought to be some dignity, into a tinker's shop by pottering about with these weights for a few pence; whereas they ought to be done by the ironmongers in the town. In a country town where they have no person qualified, they would very soon find one capable of adjusting, if the inspector did not do it.

490. You think that the competition of the inspector prevents any one else undertaking it?—Yes; but there are other greater evils connected with it as well. The inspectors in country towns contract with the tradesmen to keep their weights in order. There was a customer in my shop the other day who came up from the country to purchase some weights, and in the course of conversation with him I said "who "attends to your weights down there," and he said "the inspector does, but he never comes near us." I said "how is that;" "Oh," he said, "he comes to "bring his bill at Christmas, and I pay it." He said to him "I do not like this. You never come near "me to adjust my weights." "That is all right," the inspector said, "you will never be fined." That was in the neighbourhood of Dover or Folkestone. In effect it renders the Act of Parliament null and void, and through the person who is paid a good salary to carry out the Act. I think it is the duty of the Government to prevent this by allowing them to test and stamp only, as it is evident no inspector would expose any trader for fraudulent transactions practised with his scales, weights, or measures, during the time he received a payment indirectly of any kind from the tradesman. I must here state that the

metropolitan inspectors are perfectly free from practices of this kind.

491. What is the greatest amount of error that you remember finding?—3 lbs., 4 lbs., 6 lbs., and 7 lbs. in large weights.

492. What is the greatest proportion of error or shortness that you find in any particular weights?—3 lbs. and 4 lbs. in a half cwt.; that is when they have been so roughly used that the lead is broken out and lost.

493. What was the very highest proportion of error that you remember?—7 lbs. in a half cwt.

494. Can you tell me what would the maximum error arising from fair wear and tear within a reasonable period without adjustment?—That would entirely depend upon what the business was.

495. Even in businesses where the wear and tear is greatest what would it be?—I should say that an ounce would be the full maximum in a half cwt., in a cheesemonger's business, for three months' hard wear. There are other businesses where the wear is more than that, such as an ironfounder's, chemical works, &c.

496. Have you known instances of tradesmen suffering or alleging that they suffer from the negligence of their scale-makers?—I have known many instances of their suffering when they have employed a tramping person, falsely called a scale-maker, but not when they have employed a respectable scale-maker, and those classes of persons who have made the complaint are those that would employ trampers.

497. Do you sell any weights of other denominations than the official standards, such, for instance, as $3\frac{1}{2}$ lbs. weights?—No.

498. You do not find that there is any demand for them?—We have been asked for such, but we adhere to the Act of Parliament, and we would not make such things. In the case of bakers whenever they require, which they do, in all their bakehouses, to use odd weights to make up $3\frac{1}{2}$ lbs., we recommend them to tie them together.

499. Do you suppose that they do get such weights from any other firms?—I do not think they do.

500. You think that such weights are not in use?—Not in London, and we should not think of making them, as their size would be so near the same as a 4 lb., they could be used for a 4 lb. undetected by the public.

501. And you think that they are not in much circulation anywhere?—No, not in London.

502. Do you sell many troy weights?—Yes.

503. Are any of them stamped by the inspectors before being sold?—None; they have no standards.

504. Are the brass troy weights all stamped at Founders' Hall?—Yes; and I think at Goldsmiths' Hall they have a set of standards. I think they will stamp troy weights at Goldsmiths' Hall or at Founders' Hall. I am not positive upon that matter, but troy weights are all sold unstamped. We keep a set of standards of our own, and we adjust them sufficiently near. We merely put our own stamp upon them, and it not having been considered compulsory to have them officially stamped, of course we do not take the trouble.

505. Do you ever contract with tradesmen to adjust troy weights?—Yes.

506. Particularly with silversmiths and chemists?—Yes; they occasionally send them to us to be repaired, and we find them very light when they do so.

507. Do you contract with them periodically?—No.

508. But you have found much greater proportional error in troy weights than in avoirdupois?—Yes, very much greater. If we get a set of troy weights from a chemist, or jeweller, or pawnbroker, they are generally very light.

509. Can you give us an idea of the amount of errors that you find in troy weights?—In the 32 ounce I should say that perhaps it might be half an ounce troy light. I have met with them so light that they must have been in use for perhaps 20, 30, or 40 years.

510. Then it has been the result of fair tear and wear?—Yes.

511. You have no reason to suspect anything unfair?—No. The troy weight is a weight that will wear very fast. It is generally made in cup sets, and the fact of popping one cup into the other continually and turning them out again is such a chafing operation that it wears the weights away very quickly.

512. Are you speaking now of chemists' weights?—Yes, I am speaking of troy weights that are made in cup sets used by chemists and druggists.

513. And of troy weights treated in the usual way?—Yes, of cup weights treated in the usual way.

514. Are the troy weights that you sell generally unstamped?—Always unstamped. I never had a set stamped in my recollection.

515. Are those the only unstamped weights that you sell?—They are the only unstamped weights that we sell, and we should have them stamped if we were compelled.

516. Do you think that it would be a good thing to require all weights to be stamped before being sold?—It would be the most important thing that could be introduced into the country. I will show you the bad results of not doing so. There are on the table two or three sets of rough iron weights which I purchased yesterday. Those are new weights, bought in the City, and there are only two right in the whole three sets. For instance, in one set of square weights with rings the 28 lbs. was eight drams heavy, the 14 lbs. three drams heavy, the 7 lbs. a dram and a half, the 4 lbs. three drams, the 2 lbs. a dram and a half; the 1 lb. was nine grains heavy, the $\frac{1}{2}$ lb. was right, and the $\frac{1}{4}$ lb. was half a dram heavy. In another set of flat-iron weights bought from another firm, the 4 lbs. was three drams heavy, the 2 lbs. one dram, the 1 lb. one dram, the $\frac{1}{2}$ lb. was right, the $\frac{1}{4}$ lb. was half a dram light, the 2 oz. was two drams eight grains light, the 1 oz. was five grains heavy, the $\frac{1}{2}$ oz. was half a dram and four grains heavy. In another set of square ring weights, purchased of another firm in the City, the 28 lbs. was eight drams heavy, the 14 lbs. was six drams heavy, the 7 lbs. was four drams heavy, the 4 lbs. was two drams six grains heavy, the 2 lbs. was eight grains light, the 1 lb. was four drams heavy, the $\frac{1}{2}$ lb. was one dram heavy, and the $\frac{1}{4}$ lb. was half a dram and six grains heavy. So that of the whole number there were only two right, and those were the half-pounds.

517. (*The Warden of the Standards.*) Are those weights stamped?—No, they are not stamped; if those weights had been stamped they would have all been correct. The evil of allowing weights to be sold unstamped is this:—Those weights from these two large concerns in London are spread all over the country amongst the ironmongers, and they are purchased of them by private individuals who imagine, of course, that they are correct; they have the appearance of being correct, and they are sold to them as being correct; they are taken into private houses, and tradesmen's goods are weighed by them and appear short weight, because these weights are principally heavy, and fault is found with the tradesmen, whereas the fault is in the weights. If they were compelled to stamp them before they sold them, all that would be remedied; they would only have then to add the cost of stamping, which is a halfpenny a weight, to the present cost price of them.

518. (*Chairman.*) Do you deal in metric weights?—Yes.

519. Do you find that there is much demand for them?—There is a demand, but of course not very great at present.

520. Do you know of any instances of their being used for buying and selling?—Yes. Mr. Oakey, in the Blackfriars road, applied to me one day last week for metric weights. He is in the habit of sending

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goods to France, and he has been accustomed to send them in weights of 50 lbs. avoirdupois; but his French customers were so confounded with the weight that they could not understand it, and he has applied to me to make him some kilos.

521. Do you construct those weights?—Yes, we construct them of iron in the usual way as we make other weights.

522. Of what material and form of construction do you make them?—We make them of iron, square shape, with rings. We make them of the same pattern as the 56 lbs.

523. Do you know that we have recommended in our second Report to legalise the use of metric weights and measures?—I was not aware of that.

524. We have also recommended that there should be a legal regulation to make them as conspicuously distinguishable as possible from imperial weights and measures. Can you give us the benefit of your practical experience and your opinion how that recommendation could best be carried out?—I think the concurrent use of the two systems would make confusion worse confounded, unless you make it compulsory to use the metric only after three years; then we should gradually get out of the confusion. Unless that is done, our present inconveniences will be increased.

525. Have you any recommendation as to how we could avoid the confusion?—The only plan by which you can do so is by having the metric weight of a hexagonal shape; we have no avoirdupois weight of that shape in England.

526. You think it might be done if we were imperatively to require that metric weights should be hexagonal, and forbade any imperial weights to be hexagonal?—Yes, I think that would do.

527. Do you think that that would be as good a method as could be adopted?—I think not so good as abolishing the imperial after three years, and allowing the metric to be made any shape; the hexagonal is a shape that is awkward to use, and would not be permanent, so that on the final introduction of metric and compulsory weights another new set of weights would be required to be accustomed to, that would make two changes in the place of one.

528. As to the series of decimal multiples and subdivisions of metric weights that may be legalised as standards and used for commercial purposes, you are aware, I dare say, that in the French metric system the series is only 1, 2, and 5; do you think that series is practically sufficient?—They have a duplicate 1 also which they occasionally use. I have brought with me a series which I have considered would be very convenient. Weights for commercial use should be as few in number as possible, that the difference in their size may be the greater, to facilitate their recognition at first sight. The following division of metric weights would form a convenient set for use, and have the very important advantage of bringing the 56 lbs. now in use into service again, by simply readjusting them. The series is as follows:—

1 Milligram.
2
3
5
10——— 1 Centigram.
2
3
5
10——— 1 Decigram.
2
3
5
10——— 1 Gram (the unit).
2
3
5
10——— 1 Dekagram.
2
3
5
10——— 1 Hectogram.
2
3
5
10——— 1 Kilogram.
2
3
5
10——— 1 Myriagram.
15 Kilograms.
25 Kilograms.

56 lbs. Avoirdupoise being $\frac{1}{65}$th part more than 25 Kilograms.

There might be a similar series for metric liquid measures, from the millilitre to the dekalitre.

529. The number of weights in a series necessarily affects the question of the cost of a set of metric weights; can you give the Commission any information as to the cost of a set of metric weights?—Yes, a set of iron metric weights from 15 kilos. down to one hectogram would cost about 10*s.* 6*d.*

530. And according to the different series how would that bear upon the question?—A small set of flat brass metric weights for commercial purposes would cost about the same price as similar avoirdupois weights, 4*s.* 6*d.* So that a complete set of metric weights from 25 kilos. to the equivalent of a quarter of an ounce would come to about 16*s.*

531. Would you make them all hexagonal shape?—Yes, all hexagonal shape. The small brass weights could be made hexagonal, the top and bottom surfaces could be turned in the lathe, the edge filed by hand.

532. You would consider it important, would you not, to have them in the same form, so that there might be no mistaking the one set of weights for the other?—Yes.

533. Have you considered the question of the expediency and the cost of converting imperial weights into metric weights for commercial purposes with the view of carrying out the object which I mentioned of using both systems permissively?—There is only one weight which it would be advisable to convert, and that is the 56 lbs., and the cost of converting a 56 lbs. into a 25 kilos. would be 1*s.* 6*d.* each weight, including stamping as well. That is the only weight which it is advisable to convert.

534. In that case you would lose the avoirdupois weight?—I am merely speaking now in the event of the metric system being adopted compulsorily; it is only then that you would require the conversion; you

cannot convert your avoirdupois weights before you have done with them.

535. Have you large dealings in balances and weighing machines?—Yes.

536. Are they constructed by you?—Yes.

537. Do you furnish them for the inspectors of weights and measures?—Yes.

538. What is the usual cost of a set of balances, such as the inspectors require?—They vary according to their quality. The average cost of a pair of scales for the trial of 56 lbs. and 28 lbs. weights would be about 10*l.*

539. I suppose you have to furnish the inspectors with a complete set for trying all weights?—Yes.

540. What is the cost of such a set for trying every weight?—It depends entirely upon the quality, some are very much better than others, but I should say at a rough calculation from 30*l.* to 40*l.*

541. What number of balances would that be?—It would be four pairs of scales and beams; we do not call them balances.

542. In what sense do you use that term?—The term balance is applicable to all scales, beams, and weighing machines of all kinds, including lever machines. They balance when they stand even.

543. Are they generally sent back to you for readjustment?—Yes.

544. Is that very often done?—They do come back sometimes; once in three or four years.

545. In what condition do you generally find them?—Not fit to test weights on.

546. What is the cost of adjusting a set of scales?—I should say that the cost of repairs is something like 40 per cent. of the original cost, including regilding.

547. Can you inform us what the usual sensibility of those balances,—both after and before adjustment?—When they go away they are as good as the principle on which they are made will permit, but they are not perfect. Our inspectors' scales are constructed upon a wrong principle. Although it is a simple alteration that is necessary, yet it has a very important effect—they ought to be constructed upon the same principle that the scales are in this office—they ought to have face plates, whereas instead of that they have back shoulders.

548. Do you consider that the balances furnished to the inspectors are generally sufficient for the due discharge of their duty?—I do not, because when placed in the hands of inexperienced persons and roughly used, to which they are exposed, they are more likely to become injured sooner than in the hands of persons who do understood them.

549. And do you think that a change in construction is necessary?—I think face plates would be a very grand thing, and would prevent much of what is known in our trade as shifting in the bearings, which always produces inaccuracies.

(*The witness described the face plates to the Commission.—They are small plates fixed opposite the ends of the knife edges upon which the beam vibrates, so as to prevent them from shifting laterally. The knife edges work in two rounded holes in the fork of the balance. In ordinary balances, when there are no face plates, there are back shoulders to the knife edges, and they work against the inside of the rounded holes, to prevent lateral shifting, and thus cause much friction.*)

550. (*The Warden of the Standards.*) Do face plates prevent the friction of the shoulder that you spoke of?—Yes; I consider the face plate construction is nearly perfect, if carried out with all the bearings. There is only one step further that can be attained, that is no friction on face or other plates, and centres working on flat bearings.

551. (*Chairman.*) Are there many different constructions of commercial scales and balances with weights in the pans, generally used for buying and selling?—Scales vary from those calculated to weigh one ton to those that are calculated to weigh one ounce, and they are usually sold according to the various businesses requiring them.

552. In balances required for weighing particular commodities, is there much difference in their construction?—No; they run very uniform.

553. Is there much difference in their cost, according to whether they are used in large shops in more wealthy neighbourhoods, or by small traders in poor neighbourhoods?—There is only a difference in the quality of them. They spend a little more money on the scales in the large shops.

554. Where more money is spent upon them are they more accurate?—Not at all. A pair of scales which cost 16*s.* may be as accurate as one which cost 16*l.*

555. Although they do not differ in accuracy according to the price, do they differ in accuracy according to the workmanship?—Yes.

556. Do you know any instances of tradesmen being convicted in consequence of their buying cheap balances of faulty construction?—Yes, a good many.

557. Is that chiefly among the small traders?—The inaccuracies are found principally amongst the weighing machines, and upon that subject I will beg leave to show the Commission these two weighing machines which I have brought with me (*producing the same*). This is what we call the commonest weighing machine we make (*exhibiting one machine*), the price of that would be about 15*s.* It is what we call a fair average scale of the kind that is commonly used throughout London, and I should say that the greatest bulk of the retail trade in England is done with that class of machine; at least when I say with that class of machine I mean with a machine resembling that; but an inferior article. You will observe that this is what we term even; there is no draught to it. A shopkeeper would not consider he had got sufficient draught if he had no more than that, because his customers require it to go down. However, that is sufficient. I now place two 4 lbs. weights on the plate, and you will observe there is very little difference. It is now quite near enough for all commercial purposes, and if they were all made like that and stamped, there would be no error, and we should arrive at something like justice to each other. Here is the stamp inserted into the body, which is the principal part of the machine; and I would recommend that each machine should have the maker's name, the same as this is in a circle, and the official mark should be placed in the centre of the circle. The maker's name would be a guarantee for its being a good steeled machine, and the official mark would be a guarantee for its accuracy.

Here is another, (*exhibiting another machine*), this is a class of machine which has been introduced in consequence of not having them stamped; this is an inferior article, and a very great quantity of them are now in use. You observe that it has an appearance quite equal to the other; indeed some might fancy that it was a better weighing machine; but it is constructed without steel in any of the bearings, and the price of this one is 8*s.* 6*d.*, as compared with 16*s.*

558. What is the result when you weigh with that machine?—A tradesman has a weighing machine of this sort in his house, and if he is an honest man he places his goods in the centre of the scale and then he would not do much wrong; but not being an honest man, and having ascertained the capabilities of his machine, he finds the possession of the means of undetected fraud so tempting, that he says to himself, "I will put it near the inner rim of this plate, which "will make two ounces less to every person that "buys 4 lbs." Then, presuming that instead of selling he were going to buy an article, which frequently occurs, the same machine will assist him to rob again. He puts his goods near the outer rim of the plate, and it will take three ounces to make it go down, and by that means he gains three ounces. (*The witness*

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exhibited these results of placing the weight on different parts of the plate.) What I wish to press particularly upon the Commission is this, that after you have given tradesmen all the trouble to make their weights correct and get them stamped, they may take them home and use them on one of these incorrect weighing machines, by which they can make two ounces difference to the purchaser and three ounces to the seller at their own pleasure, and not be detected. The deficiencies increase in the same ratio as the weight, with 8 lbs. it would be 6 ozs.

559. (*Mr. Cave.*) Will you explain how it is that there is this difference between the parts of the porcelain upon which you put the goods, and why it is so more in the one case than the other?—Because the machine is badly constructed; it is not made upon proper principles; there is no attempt whatever to make it to a scale; they merely thump the pieces together, just as they will come; they do not measure anything.

560. What difference of construction would be necessary to make it weigh the same, if the weight were placed on any part of the plate?—All the alteration that this would require would be to lengthen what we call the tail a quarter of an inch; but it will never weigh accurately, it will not turn with an ounce.

561. (*The Warden of the Standards.*) If all balances of that kind were obliged to be tested and stamped, what would be the result?—No false machines like that could possibly get into use, because the present inspectors, although they are not mechanics, have got sufficient judgment when a machine is taken to their office to be stamped to put the weights on it as I do, and of course they would discover any wrong in a moment. This is a very important thing indeed, as all could be done without further expense, or more inspectors.

562. Can you give the Commission any information as to the balance ball question, as to whether any balances are now constructed and sold with an adjusting ball that cannot be tampered with by a tradesman?—There is only one system by which it can be done. The balls must be soldered up and then they cannot be tampered with, but then they become useless, except only as an ornament. The ball thus becomes merely a part of the scale. If it is soldered up of course it will prevent that class of fraud, but it is utterly useless in a pair of scales unless it is made to open. That is the very object of it.

563. (*The Warden of the Standards.*) Do you think it is necessary that scales should have a balance ball?—I do. I consider that no honest man ought to be deprived of this mode of adjustment. I think it is quite sufficient when an inspector walks into a man's house and finds his scales correct, for him to know that they are correct. The inspector should not be able to say you shall not yourself have the means of making them correct.

564. Are you aware that a legal decision has been given that a balance ball is illegal at the present time?—Yes, I am aware of that, and with due respect to the judge's decision, I do think it was a very unpractical conclusion to come to. I feel confident the case was not fairly laid before him, as I will now show. The balance balls and the loading in them weigh from 1 lb. to 4 lbs. according to the different sizes of scales. I will presume the scale under discussion was the medium size, that would give 2 lbs. as the weight of the ball attached. We may now suppose the tradesman has removed it; the result is the scales are useless to him. He might as well take them down and put them under his counter. He could weigh nothing with them under 3 lbs., and that would give the customer 1 lb. of goods. I question if the person served would be satisfied with that. Suppose the next customer required half a pound of butter, if the shopkeeper attempted to weigh it on those scales the goods would be 1½ lbs. less than nothing. Not many would be satisfied with that. If he had to weigh 6 lbs. there are few persons so simple as not to discover the goods to be one-third deficient of the weight they paid for.

565. In case the ball is removed, the balances must be adjusted, and an additional weight placed instead of it?—Yes; but in speaking of the decision of the Court of Queen's Bench, the judge said it could be taken away for purposes of fraud. That is what I understand, but I say that it could not be done so, only in large weighings. If he was going to weigh a piece of butter or provisions of the weight of something like 6 lbs. or 8 lbs. he could take it away. Then he could not tell what the next customer would want. The next customer might want ½ lb. of goods. He must not go round the counter and put on the ball to weigh ½ lb. of goods, in fact, he could not use his scales at all. I never knew an instance in all my experience, and I have had 40 years' experience among shopkeepers, where the balls have been in constant use and never found one removed. The greatest amount of fraud that I have found in practice is placing a penny piece hidden somewhere about the scale beam, or a piece of bacon stuck on some part of the scale; that is about the kind of what I call practised fraud. A butcher will place a hook about the chains in a part where it is not observed, or put a tin ticket under the plate of his weighing machine. Those are the kind of things that are done continually, but as to removing the ball I never heard of such a thing.

566. The decision having been given that at present a balance ball to a pair of scales is illegal, do you think that the law ought to be altered?—A pair of scales is quite as useful without a balance ball, only that a tradesman cannot set them to rights himself, and consequently he would often be in error. You must be aware how much a tradesman has got to contend with. A tradesman in a neighbourhood, such as the New Cut, or Whitechapel Road, or any commercial neighbourhood, will weigh perhaps in one day, Saturday for instance, a ton of salt pork. I will suppose that before he commenced weighing the ton of salt pork in small pieces, his scales were perfectly correct and perfectly even. But the following morning, if he looks at those scales, he will find that he has got from an ounce to an ounce and a half of draught from the accumulation of wet and salt about the scales.

567. You think, do you not, that every tradesman ought to have the power of himself adjusting his scales?—I do not think it would be a bit the better for me, but I think that they ought to have it most decidedly in those businesses for their own protection, and for the protection of their customers. A tradesman could not possibly send down to the scale-maker every day or every other day; the thing is utterly impossible, and that would be the result of it.

568. Is it not a very large practical question, the legality of having a balance ball to a pair of scales?—It is a very large practical question.

569. And it is a very important question for tradesmen?—It is a most important question. I think you have now come to the most important part of the transaction.

570. (*Mr. Cave.*) What you think is, not that fresh legislation is wanted, but that this decision ought to be reversed?—Decidedly; yes. I think that the ball ought to be allowed to be now used, as it has been, as long as I can remember.

571. You find fault with the decision of the Court of Queen's Bench, and not with the Act of Parliament, I presume?—Not with the Act of Parliament.

572. (*The Warden of the Standards.*) You adjust a pair of scales by the use of this balance ball, do you not, by opening the ball and putting in more or less shot to adjust it?—Yes. They use in shops now for all provisions what is called a porcelain plate. These porcelain plates when they are new and the enamel upon them is perfect will absorb very little moisture,

but from wear and tear, and knocking the goods about, they become scratched, and the longer they are in wear the more the enamel is damaged. A large sized plate, a 15-inch plate, such as I was speaking of just now, after weighing a quantity of pork like that, would absorb 1½ ounces; and the next day after you had the scales made right, if it should be a very warm dry day, you would have to take out your ounce and a half again towards the latter end of that day.

573. (*The Master of the Mint.*) That is as regards the porcelain plate?—Yes, but it would be the same to a certain extent if it was a metal plate. If they do not keep their scales as clean as they ought, and leave them corroded with salt, it has the same effect upon it that it does upon the porcelain plate.

574. Would not washing be sufficient to rectify it?—Washing would not rectify it, because the interior of the plate requires to be dried. When such little trifles as the following are taken notice of in a tradesman's shop, it is necessary that he should have some means to avoid the consequences. Mr. Pratt, a ham-shop keeper, told me yesterday that for 20 years he did not have an inspector call; he has had one twice lately, and he is now summoned to appear at the Sessions House this morning, at 11 o'clock, to answer the charge of having the weight of two small tin tacks draught to his scales on the counter, with a 24-inch beam, and the spire of the beam ⅛th of an inch out of the upright. That is a very small draught, the weight of two tin tacks could not possibly be half a dram. You must take this statement as it was given to me. I do not know that it was so, but it is the man's own statement; what the inspector will state perhaps may be a different thing, but this is the man's own statement, and his case is being heard now, I daresay. If it were necessary I could mention many other instances.

575. (*Chairman.*) Do you contract to adjust tradesmen's balances and keep them in proper order?—We contract only to adjust the weights, and clean, oil, and balance the scales and weighing machines; we do not make any repair that may be required without a charge.

576. Are such balances generally kept in proper order?—Yes, in tolerable order.

577. How often do you think that such scales and balances should be adjusted?—Scales do not require so often repairing as weighing machines; it entirely depends upon the amount that they are used.

578. In one of the small shops that you have described, where salt pork, for instance, is being constantly weighed, how often would adjustment be necessary?—It is necessary to have them balanced every day, and repaired once in two years at least.

579. What is the cost of repairing?—The cost of repairing a beam, such as they weigh butter with on a counter, would vary from 10*s.* to 15*s.*, repairing, re-adjusting, and re-gilding.

580. In other trades where there would not be so much wear and tear, what would be the period?—They may go perhaps twice or thrice as long, 6 or 7, or 9 or 10 years.

581. Have you considered whether it would be expedient to require all commercial balances and weighing machines to be tested and stamped before being sold and used?—I have well considered that question.

582. Do you see any objection to that being required by law, as in the case of gas meters?—I consider that a most important matter. I consider that when you have stamped all the weights in the country you have only gone one-tenth towards what you wish to attain, that is prevention of fraud. Unless you stamp weighing machines and platform weighing machines, that is to say, lever machines, you will never do it.

583. Where would you stamp a pair of scales?—I would insert a small piece of copper through the beams and stamp on that. The weighing machines are more important than the scales; the scales are not so liable to get out of order, and they are not so liable to error from bad construction.

584. (*Chairman.*) With regard to steelyards and the larger weighing machines used with special weights adapted to them, do you deal in them?—Yes.

585. And do you construct them?—Yes.

586. Have you considered the expediency of testing and stamping all those weights, scales, weighing machines, and balances?—Yes, they ought all to be stamped, and in that case they must alter the construction of them—they must be made upon the same principle as those of the metric system, or so as to be used with avoirdupois weights.

587. In the French metric system is it not the case that all special weights so used must be made metric weights of legal denominations, to which each machine must be adjusted?—Yes; and a very excellent plan it is.

588. Do you think that a similar regulation could be introduced into this country?—It is the easiest thing possible, and the result would be very important. In my warehouse I have a dozen of these platform weighing machines, and not one of them is like another. We make the compound leverage of the machine first, and then for convenience sake we put whatever weight is required to it, and make it balance to weigh a given weight, whereas the proper principle would be to take $\frac{1}{56}$th part, or $\frac{1}{112}$th part of the cwt. first, and start from that point, and make the machine to the weight.

589. Do they alter the shape of the weight?—I am merely speaking of the weights which are required to counterpoise the machine. They are cheese-shaped.

590. Have you ever heard of instances of such special weights being used in this country as ordinary commercial weights, such as might be done in the French system, namely, metric weights of equal denominations?—No. The practice in France is to attach a scale pan to the machine to receive the weights. We do not do so.

591. Have you heard of such weights being subject to inspection?—No, I have never heard of it. The fact of their not being made upon a scale of either the decimal or a division of avoirdupois weight takes all the supervision of the inspector away. He has no supervision of them whatever. If he takes any standard, he cannot try the small weights; but if they were made upon the avoirdupois scale, he could try the machine first with his 56 lbs. weight. If correct, he could then carefully try all the weights used with the machine. If they were correct the machine would be correct. But if any alteration is decreed, it ought to be to adopt the metric system, then no further alteration would be required. On the compulsory introduction of the metric system, a further alteration would be too much.

592. Is what you have stated the legal condition of things?—It is not the legal condition. I believe there is no law on the case. I know that when weighings are disputed, they are not allowed if weighed upon a platform weighing machine.

593. Are we to understand that in the case of those platform weighing machines they adjust them to weights which are fractions of avoirdupois weight, for which there are no legal standards?—Yes, that is the great defect in them.

594. But I think you told us that those weights were not used as ordinary commercial weights?—No, they are not. They are merely lumps of iron and part and parcel of the machine. I have made out the following list of the loose weights belonging to a platform weighing machine:—A piece of iron marked 14 lbs. weighs ¾ ounces; 28 lbs. weighs 7½ ounces; 56 lbs. weighs 13 ounces; 112 lbs. weighs 1 lb. 10 ounces; 224 lbs. weighs 3 lbs. 4 ounces; and 448 lbs. weighs 6 lbs. 8 ounces, all odd weights, with additional fractions to them all, as I did not weigh them close.

595. What is the usual practice in adjusting steelyards and other similar lever weighing machines; is the weight itself or the length or the weight of the

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lever altered?—We make the weight to suit the lever, which is a wrong system.

596. That is the system in use at present?—Yes, and that is exactly the reason why those weights run into so many fractions.

597. (*Mr. Cave.*) You cannot possibly test those weights alone?— It cannot be done.

598. (*Chairman.*) Do you supply local standard measures of length; that is to say, standard yards for the use of inspectors?—Yes; but yard measures are never stamped now, and have not been for very many years, except that in the city there are a few. I do not think that in any other office in London are they stamped.

599. Those local standard yards consisting of a metallic bed and rod are generally made of brass, are they not?—Yes, generally of brass or of gun metal and pot metal.

600. What is the cost of standard yards of the two metals?—I cannot say that I can tell exactly. I should say it would be about 2*l.* or 2*l.* 10*s.*

601. What is the relative cost of the two, gun metal or brass?—There is not a great deal of difference between the two.

602. Have you supplied any iron substandard yards for Ireland?—No, not in iron.

603. Do you also adjust these local standard yards before reverification?—Yes.

604. In what condition do you generally find them before you adjust them?—Not much variation, very trifling indeed.

605. To what extent in the yard?—Something like a thousandth part.

606. You are aware I believe that it is proposed to establish standards of subdivisions of the standard yard, and of the foot and inch; do you consider that practically such subdivisions could be marked upon the existing standards?—It would cause confusion. It could be done and is done. It is done by all rule makers and therefore it might be done on the standards, but it would have to be done on the opposite side of the edge.

607. Would it be desirable to construct such local standard yards of iron marked with subdivisions; would there be any advantage in that?—I do not know of any advantage. I think that iron is a less suitable metal than brass, because it is more porous.

608. Do you deal largely in commercial measures of length?—Not largely.

609. Do you construct them?—No; they are sold principally by rule makers.

610. Of what material are they generally made?—The measure of length is the yard measure, and it may be of boxwood.

611. Do you find that these measures and their subdivisions are generally accurate?—They never bring them to us to try them. There have none of them been stamped for many years that I know of. I am pretty well certain that there are none stamped, except at the city office.

612. You do not know whether they are accurate?—I think they vary.

613. Do you deal in metric measures of length?—I never have sold any.

614. Can you suggest any practical mode of establishing a conspicuous distinction between imperial and metric measures of length for commercial purposes?—I have not considered the subject at all.

615. Have you supplied many local standard measures of capacity for the use of inspectors?—Not a great many.

616. Have you supplied any sub-standards of capacity either for Ireland or anywhere else?—No.

617. Do you know any instances of such substandards being in use by inspectors which have not been verified in the Standards department?—I am not aware of any.

618. Do you know of what material these standards of capacity are made?—Principally of gun metal and pot metal.

619. Have you readjusted any from time to time?—Yes.

620. What is the cost of a set of such standards?—From 60*l.* to 100*l.* It depends entirely upon the quality of the metal and the manufacture, because some are much more highly finished than others.

621. Are you speaking of a complete set of standards?—Yes, a complete set of standards, from a bushel down to half a pint; from 60*l.* to 100*l.* I should think would be the cost.

622. You say they are mostly made of gun metal?—Yes, they are mostly of gun metal.

623. Do you deal largely in commercial measures of capacity?—Yes.

624. Both for liquids and dry commodities?—Yes.

625. Are those two descriptions of measures quite differently constructed?—Quite differently constructed.

626. As to liquid measures, of what material do you make them?—Pewter, tin, brass, and copper.

627. Does their form differ very much?—Yes, very much; the cylindrical form is the principal one; then there is the pewter spirit measure, which is of a very different form.

628. For what trades do you supply those measures?—We supply them for the oil shops, and publicans, and grocers, and in fact every trade uses a small quantity of them.

629. (*The Warden of the Standards.*) Do you supply them to milkmen?—No.

630. (*Chairman.*) Do you supply such measures of any other denominations than the official standards or local and customary measures?—No; they are all official standards, at least we make no other weights or measures but those that are copies of them.

631. What is the cost of the measures which you supply usually to the trade?—A set of pewter measures, from a quart down to half a gill, would be 12*s.* 6*d.*; a set of pewter pots, from a quart down to half a pint, would be about 5*s.*; and a set of tin oil measures, from one gallon down to half a gill, would be 9*s.* 6*d.*

632. Do you deal in metric measures of capacity?—Yes.

633. Under the metric system in France all metric measures of capacity for liquids must be made of a specified metal, and its composition is tested before verification and stamping, and they must be made of a specified form. Do you see any objection to a similar regulation being established here so as to make a marked distinction between imperial and metric measures of capacity for liquids?—The French metric measures are the same shape as ours.

634. Can you suggest any plan by which they should be distinguished?—I think that the most simple plan would be to make all metric measures with a small brass band at the top; I think that would be sufficient, if the band is put round them all. Those that are made of tin have a tin band put round, and if you had a brass band put round the top of them it would be sufficient to distinguish them.

635. Can you give us any information as to the cost of metric measures?—They would be about the same average as our own. A set from the litre down would cost about the same as a quart down.

636. Do you see any objection to the metal being of a specified composition in the case of metric measures?—I do not see any necessity for it in England. We have got on very well with our measures without having any instruction about the material. Many of the purposes they are used for are oil, varnishes, turpentine, naphtha, paraffin. Anything is good enough for such dirty purposes.

637. (*The Warden of the Standards.*) In France they lay great stress upon the metal being of a particular composition in order to prevent it affecting the liquids put into it?—I understand so. I think there is nothing used at present that affects the goods in any way, or to any great extent. I do not think that any great advantage could be derived upon that point. We have pewter for acids, we have tin for oils, we

have brass and copper tinned on the interior of it for spirits; and I think that no great improvement could be made with respect to the metal.

638. Is there any great difference in the composition of the pewter that is now used?—There is some very excellent pewter now, but there is a great deal of very bad pewter also; although we can get as good pewter as ever.

639. (*Chairman.*) Do you deal in commercial measures of capacity for dry goods?—Yes.

640. Of what denominations?—All denominations, from a bushel to half a pint or half a gill in wood, banded with iron.

641. What kind of wood is it that you use?—Beech principally. Canadian rock elm is the best wood for measures.

642. In what form are they made?—Cylindrical.

643. What is their cost?—The cost of a set of common measures from a bushel down to a pint is 30*s.*, and a set of wood measures with handles, such as are used in corn chandlers' shop, from one quart down to half a gill would be 3*s.* 9*d.*

644. Do you deal in metric measures of capacity for dry goods?—Yes.

645. Can you suggest any mode of making a conspicuous distinction between imperial and metric measures in the case of dry goods?—No other than brass bands; that is the simplest mode.

646. And can no other form except the cylindrical one be adopted?—I cannot go into any other form for dry measures, otherwise the expense would be so great that people would not be able to buy them.

647. (*The Warden of the Standards.*) Have you ever found any measures for dry goods made square?—No, I never saw any; they could be made square; I see no difficulty about that.

648. (*The Master of the Mint.*) Are all those cylindrical measures made upon the principle of a barrel?—No, they are of twisted wood; a strip of wood is curled on a roller, they are twisted measures.

649. (*Chairman.*) Are your own weights and measures subjected to inspection by the local inspector?—We are not subjected to it. We have them inspected ourselves when we think it necessary.

650. Have you considered the question of making any or what allowance of error in commercial weights and measures?—Yes in commercial weights and measures I think an error of a quarter of an ounce in half a hundred weight ought always to be tolerated.

651. Have you any fault to find with the mode in which the inspector exercises his duties under the existing system?—There are very many errors, of course, but I think as a rule the system is excellent. I do not see that we could have any better plan, nor have I seen any other plan so good. When I was a young man I used to go out with the court leets, and their practices were very bad in comparison with the present system. For instance, the jury would go out in some district and after the day's work was over they would all retire to an inn, and a list of the names was read over and fines were then settled by the jury and the foreman for the time being. I think that was a very bad arrangement, I think the present system is infinitely superior to that. It does not give one tradesman in a place the opportunity of walking into the shop of his opposite neighbour in the same trade to investigate *his honesty*.

652. You find some fault with the manner in which an inspector acted in setting up, as you said, a tinker's shop, and another inspector assuring a tradesman that he should not be fined?—I think that a very bad feature, it takes away all dignity out of the transaction altogether. That same inspector would adjust the weights of the cat's meat men in the town with the scales and weights furnished him by the county.

653. But on the whole you think the duties are well performed?—Yes; but I think the inspectors ought to attend to their duties of testing and stamping and nothing else.

654. Have you any further observation to make upon the practice which exists in some districts of the inspector adjusting from time to time as well as verifying commercial weights and measures?—I think he should not do it, as before stated.

655. Has the mode in which the system of inspection of weights and measures is now executed, whether by local inspectors who are not policemen, or by policemen who also act as inspectors, come under your observation and consideration?—I have thought of that matter, and I think that it is a very bad rule. I think that the salary of an inspector ought to be sufficient to keep him without his having to do anything else. I think if he attends to his duties as he ought to do he will have quite sufficient to do without being a policeman, or without having any other duties to perform.

656. An ordinary policeman also I presume would hardly be fit to carry out the duties?—Certainly not; half the existing evils arise from appointing unfit persons as inspectors of weights and measures.

657. Have you been in the habit of acting as agent to the local authorities for the official verification in the standards department of their local standards?—I used to officiate for the lord of the manor of the borough of Southwark.

658. Have you not acted for those other local authorities to whom you have supplied the standards?—No.

659. Have you any observations to make upon the practice of the department and the way in which they have executed their duty of verification?—I think that they have been rather severe in some things and they have not been sufficiently severe in others. I think that there have not been sufficient visits paid to many places. In fact, at the present time I am certain that in the district in which I reside there are some places that the inspectors have not been to for these 30 years. I might take the whole, I think, of the district along the wharves from somewhere by Lambeth or beyond it right down to Deptford, and I believe that the inspectors have scarcely ever been in any of the warehouses.

660. My question referred more directly to the standards department here. When standards have been sent in to be verified by this department how have you found the duty performed in this office?—In every respect it has been as it ought to have been.

661. (*The Warden of the Standards.*) Are you aware that in France there are distinct officers who test and verify and stamp commercial weights and measures, who are called verificateurs?—Yes.

662. And that police officers perform the duties of inspection, and go round to see that there are no infractions of the law?—Yes.

663. Have you ever considered whether it would be an advantage to carry out that distinction of duties in this country?—I consider that it would be a very bad thing. I see no advantage to be derived from it. The policemen that you employ must be paid, or a certain amount of them must be paid, and if they are paid why not employ one man who will thoroughly understand his business. I think one great disadvantage would be this,—one policeman would not be kept continually to the duties; he would be liable to be changed from it to some other place, and another officer put in his place who would not understand it; the consequence would be a continual repetition of teaching them how to do their business. It is almost impossible for an inspector, unless he thoroughly understands the use of scales and weights, to say positively whether they were wrong at the time that they appeared so, whereas in fact it is very possible that they were not so. You may not perhaps be aware of it, but I may take a beam which has got a 56 lb. weight in each scale, such as the inspectors use, and with the balance perfectly even; if I put my hand on that beam, as the inspector would when he was going to take out one of the weights, and lift it out, up goes the other scale and over goes the beam right over on to the other shoulder. Upon putting in another correct weight it would appear as if it is a quarter of an ounce light. That is the result of bumping about. That

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beam ought to be poised up and down until the beam works into its centre, and then the inspection should begin. That is how they find such a variation in large weights. Large weights are a very great deal more difficult to test than small ones. An inexperienced person can test a small weight, but it wants a person to have a thorough knowledge of scale beams to test a large weight correctly.

664. But if a special policeman were appointed for that purpose, would that meet your objection?—No. The police doing it would create a mob round each door, and the remarks made, and the conclusions formed by the ignorant, would be very unfavourable to the shop-keeper, and hurtful to his feelings. The whole subject is strictly commercial, and I think it is better not to incorporate any police influences into it; the proper place for their interference would be to serve the summonses and otherwise carry out the law against offenders only.

665. Do you think that a different person might take the duties of verifying and stamping weights and measures from the person who goes round to inspect them?—No, I do not think there is any necessity whatever for that. I think it is necessary that somebody should inspect the inspector. I think that is more important. Under the present system as soon as an inspector is appointed he is left without any control whatever; he can do as he thinks proper. He reads the Act of Parliament and construes it in just whatever way he thinks proper, and acts upon it. The magistrates, whose duty it is to attend to those things, I am afraid do not do it sufficiently, for I have seen some very strange things done in my time. I cannot remember them now, but I thought them very extraordinary at the time.

666. Do you think that inspectors should act under uniform official instructions, say from this department?—Yes, decidedly. A code of laws should be constructed, and they should all act up to it throughout the kingdom. There should be no deviation; they should form no opinions of their own.

667. Do you mean that there should be formal instructions issued from the Board of Trade?—Yes; that would be the proper plan, in my opinion. The magistrates having the appointment of the inspectors, it often occurs that the person chosen by them has no other qualification than having been known to them previously. No sufficient care is taken to make choice of educated or specially qualified persons to fill the office. Once appointed, they are quite independent of any control, except of the magistrates, and that I fear has been but little exercised. Many of the inspectors that now hold office never weighed or measured anything before they were appointed, nor did they know the names of the various weights and measures they had to use. Some of them had to be instructed before they could begin their duties. This is a very improper method when those scales and weights and measures immediately become in their inexperienced hands the medium by which justice or great injustice may be done to persons without any previous blemish on their reputation. To remedy this state of things the Board of Trade should appoint a few superintendents of inspectors to visit them now and then unexpectedly. If it was only once in two years it would have a beneficial influence on their conduct. The superintendent should be empowered to examine all the Standard scale beams used by them, and order what repairs he might think necessary; to examine the Standard weights and measures, and consider if they required reverifying at the Standards department; to see if the place they were kept in was fit for their preservation; and how the duties were generally carried out; and to report to the Board of Trade when there was faults or misconduct; the Board to inform the magistrates of the misconduct of any inspector, and to dismiss the inspector, leaving the magistrates to appoint his successor. If that were not done within three months after the dismissal, the Board should appoint one themselves.

668. (*Chairman*). As to the provisional scale of allowance of error now in force in the official verification of Standards and sanctioned by the Commission, have you anything to observe upon that?—No, I have no observation to make upon that, except that if I were going to make a set of official Standards I should have them electro-plated with silver or gold; I think that would protect them from oxidation very much.

669. With respect to the period now fixed by law for the reverification of Local Standards, namely, not less than every five years for weights and ten years for measures, do you consider that those periods are sufficient?—I should think that they would be sufficient in most ordinary cases.

670. Are you aware that the Commission recommended in their first report that the Standards department should be empowered and required to verify weights and measures other than Standards on payment of a specified fee in all cases when they shall be called upon to do so and when special accuracy is requisite, do you think that such a regulation would be of public advantage?—I think it would be a very great error. I understand you to say other weights besides the several Standard denominations.

671. I mean other weights and measures than the Local Standards for the use of inspectors?—I think you had better leave that alone. I do not see any advantage to be derived from it.

672. (*The Warden of the Standards.*) For instance a set of Standards for yourself?—We should have them done in the ordinary way by coming to you.

673. At present the Standards department does not verify any weights and measures whatever except for the use of the local inspectors?—Precisely so, and we should never require them only for the inspectors.

674. (*Chairman.*) You do not think it desirable that commercial weights should be sent here and verified on payment of a fee?—No. We can make very good copies of standards for our own use, or for any persons that may require them.

675. (*The Warden of the Standards.*) Several applications have been made to this department from engineers, and manufacturers, and persons of that class who require weights and measures verified with great accuracy to have them verified in this department, and a recommendation to that effect has been made by the commission?—I see no necessity whatever for it—they can get them through the medium of any respectable house in London, who do scientific business. This, however, is a matter in which my opinion is of no value, as I have not considered it.

676. (*Professor Miller.*) But supposing it were wanted to have a kilogram true to the thousandth part of a grain, do you undertake that?—I question whether it could be ascertained so close as that.

677. It has been ascertained, because I have done it myself?—I never saw it myself so close as that—I would not undertake it.

678. Do you see any harm in allowing this office to do it?—Certainly not, but I myself consider that the proper plan would be to do it through the medium of some other firm.

679. But no other firm could do it?—Then the parties that wanted such a thing must apply to this department for it.

680. The apparatus used for the purpose is now here?—Yes. But that is not the only one I suppose in the world. I have the same feeling in that as I have with regard to inspectors stamping weights, because I think officers ought to be kept to their legitimate business. I am certain that it would bring upon this department such an amount of trouble that you would very much regret it, and there would be no advantage to counterbalance the trouble.

681. (*Chairman.*) Do you think it would be any advantage to individuals, supposing an individual wished this department to undertake it and was willing to pay for it?—Certainly.

682. Do you thing that it would be an injury to the community, if without lowering the dignity of the office in other ways this department undertook to

verify commercial weights and measures requiring special accuracy for a fee?—Yes, I think it would lower the dignity of this office very much, because there could be no limit to the demand. Any aliens could demand and have the results of all your expensive appliances for a mere nothing. A cheesemonger who wished to be very correct, could apply to you, and his claim would be equal to that of any other commercial man.

683. Do you think it would injure the community?—I do not think it would injure the community. I do not see it in that light.

684. (*Professor Miller.*) You are aware probably that in Prussia they verify the Prussian measure of three feet?—I was not aware of that.

685. (*Mr. Cave.*) Do you prefer taking the inspectors away from the superintendence of the present authority, that is to say, the magistrates?—No, I would make no alteration whatever in that respect The only alteration I think that is necessary is to put persons over them that could instruct them in everything they may be called upon to do.

686. But beyond that I think you stated that they ought to be the servants of the Board of Trade?—No, those gentlemen who supervise of course should be the servants of the Board of Trade, but not the inspectors.

687. Then you would leave the inspectors as they are now, but in the possession of a code of rules which has been furnished to them by the Board of Trade?—Precisely so; supervised by the Board of Trade.

688. You would also have a sort of travelling superintendent to go round occasionally in the same way as other inspectors of the Board of Trade do to see that things are going on right?—Exactly.

689. But you do not from your experience consider it necessary to alter the present relation between the ordinary inspectors and the magistrates?—Not at all; the plan I have above shown will place the control in the hands of the Board of Trade without interfering with the authority of the magistrates.

690. With regard to the balance ball, in reference to that decision of the Court of Queen's Bench, supposing an open balance ball was allowed, as you seem to consider it ought to be, how would you guard the public against fraud on the part of the tradesmen?—That would be the duty of the inspector. A man's shop is always open, and if it is not open the inspector has power to go in at all times. He can knock and enter, and if he finds everything correct, I consider that quite sufficient.

691. If he found the balance ball properly adjusted, it would be the same thing as finding the scale without a hook or a penny piece or something of that sort put fraudulently into some part of it?—Yes, it would be the same, and it would be correct.

692. That is all that you think is necessary?—Yes, that is all that is necessary. Tradesmen have so much to contend with, that they must have some simple means of adjustment. If not, a tradesman will have to send to the scale maker's every morning of his life, or tantamount to it. A butcher, for instance, who has wooden boards to his scales, may have them perfectly correct before he weighs a piece of salt beef, but when he has weighed a piece of salt beef, the balance may be half an ounce out, instantly; And repeating the weighing increases the draft to his scales, a wood scale board will absorb $\frac{1}{4}$ lb. if it is of elm.

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693. Do not you think that what you propose would be equivalent to allowing a tradesman to have scales or balances entirely unstamped?—No. A pair of scales or a weighing machine may have the appearance of being quite correct until the weights are placed upon them, and then it may be shown that they are very incorrect, as I before explained.

694. Would not it be exactly the same with the balance ball, for instance, as you say, the inspector might come in and find the scales of the proper weight, but suppose the tradesman took advantage of his having been in, and chose to run the risk of his not coming in for some time again, he might immediately alter it, and nobody except by very careful examination could find it out?—Exactly so, but we do not presume that tradesmen would do so, until we find them out, just as we do not presume a thief in the street to be a thief till we find him out; therefore, I think that the tradesmen of this realm should have some consideration shown to them. Deprive them of the ball, they then have many just reasons to plead in excuse for any inaccuracies found. Allow them the means of themselves preventing inaccuracies, they cannot offer excuses of any description, you may then be quite sure such errors are intentional, and safely punish them accordingly.

695. Without supposing that he was a thief of course the laws are directed against fraud and not against honest people. What is the use of your stamping any scale if at the same time you give a man the power to alter the balance?—The stamping of a weighing machine like the one on the table is a guarantee that it once was correct, and if it is altered we must have evidence of it.

696. What is the use of stamping a scale for instance in which the balance ball is used?—The balance ball is no guarantee that the beam is just, because the distances from the centre may not be equal. The scale might be $\frac{1}{2}$ oz. against the purchaser, and not be observed until two equal weights were put upon it.

697. (*Professor Miller.*) In what is technically called a scale beam it appears to me that the stamp is a guarantee merely that the two arms are equal?—Yes, precisely; and in a weighing machine that all the arms are exactly equal..

698. (*The Warden of the Standards.*) Then the stamp would be a guarantee that the scale was properly constructed on proper business principles?—The maker's name on a weighing machine or a scale beam would be a guarantee that it was made of a proper material, and the inspector's stamp in the centre of it would be a guarantee that it was accurate, because a thing may be made of good materials and yet inaccurate.

699. (*Mr. Cave.*) And yet in spite of all that, either from accident or otherwise, it is requisite that you should have some supplemental adjustment of the scales?—Yes, that is so.

700. (*Professor Miller.*) Do you find that those ring weights get out of order sooner than the brick weights?—Yes, they do rather sooner.

The witness withdrew.

Mr. William Cave Fowler examined.

701. (*Chairman.*) You are a partner in the firm of Nicholl and Fowler?—I am.

Mr. William Cave Fowler.

702. Have you large dealings in balances and weighing machines?—We have.

703. Are those balances constructed by you?—They are.

704. Do you furnish them to the inspectors of weights and measures?—We do.

705. What is the usual cost of a set of balances for the inspectors?—They generally have three scales or balances. The first size, for testing from 56 lbs. down to 7 lbs., would cost from about 7*l.* to 10*l.*; they may be made more expensive, but you may get very good serviceable balances for 7*l.* The next size is from 4 lbs. down to a quarter of a pound. We supply them at 1*l.* 14*s.* The next size is from 2 ozs. down to half a drachm; we supply those at 14*s.* 6*d.* Those are the usual serviceable kinds for inspectors.

706. Are they generally sent back to you for adjustment?—Not frequently.

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707. How often would that be?—Some inspectors are very particular, and send them perhaps once a year; others do not send them for 7 or 10 years. We have known instances of balances not being adjusted from the time that they were originally supplied in 1826.

708. In what condition do you generally find them before adjustment?—It has varied. Some inspectors are very careful with their balances; others are very careless, but we have found them in a better condition since the inspection has been under the control of the constabulary than they were prior to that time.

709. What is the cost of adjustment?—That again depends very much on what they may require to be done to them. Some balances would only cost a few shillings; others would have to pass through the fire and be remade.

710. It depends upon how far they have got out of order?—Yes.

711. If they are not sent back until after a long interval, I suppose, generally the cost of adjusting is greater?—If we find them incorrect we generally put them through the fire, that is to say, we remake them, and the maximum expense of that for a balance for 56 lbs. down to a 7 lbs. balance would be 1*l.* 14*s.*

712. Can you inform us what is the usual sensibility of those balances, both after and before adjustment?—After adjustment we generally make them turn to a grain in 56 lbs.

713. When they come to you to be adjusted, what difference do you find in the state in which they come to you from the state in which they leave you originally?—That is various.

714. What is the sensibility generally of an inspector's balance that comes back after an interval of some years?—Each one is independent of another. One may be, perhaps, only a grain wrong, and another may be half a pound wrong, but still with a proper system of weighing by counterpoise, it would have no effect, because we can weigh correctly by counterpoise even with an incorrect beam; we can take the exact weight by an incorrect beam; in fact, we have never yet been able to construct a perfect balance; it is not possible to construct a balance faultless.

715. How near do you say it would weigh?—We could weigh almost to the thousandth part of a grain; we have a balance that will do that, but still it varies—temperature, and a variety of circumstances that you can scarcely account for, operate upon a fine balance. You can scarcely get half a dozen weighings to correspond exactly, and we counteract that by a system of counterpoise whereby if we had a beam that was manifestly incorrect, we could take a perfectly correct weighing from it, that is to say, if a beam were a quarter of a pound incorrect—we should not meet with such a beam—but if it were a quarter of a pound incorrect, and we wanted to get a quarter of a pound standard weight weighed from it we should counterpoise; we should make up the weights of the standard in the scale, and we should then remove the standard from the scale and put in the weight which would have the proper effect, therefore we should overcome the incorrectness of the beam, but the inspectors generally do not sufficiently understand the way of weighing by counterpoise.

716. Do you consider that the balances furnished to inspectors are generally sufficient for the due discharge of their duties?—Yes; the balances are generally very good when supplied by good houses.

717. Do you think that the ordinary method upon which they are constructed is one on which a balance may be rendered quite fit for the duties that are required of the inspectors?—It is the old principle of the balance, which has been in existence thousands of years.

718. Is there no point of detail in which you think improvement may be made?—No. It is very mortifying to think that we cannot improve upon the old principle of the balance. We have tried, but all our improvements do not seem to succeed; there is no principle so accurate as that of the old balance, having one centre and one fulcrum.

719. The knife edge fits into a sort of square shoulder, does it not?—Not always; it is sunk generally into a sort of hollow in the ordinary balances. You have a perfect scale when you have agate planes.

720. You may have what is called a face plate, may you not?—Yes.

721. Have you found that the usual form of construction is the best that could be adopted?—We very rarely supply to inspectors those with agate planes; they use the ordinary scale, as it is called. The old balance, which has been now in use for so many centuries, is supplied to the inspectors.

722. Then the agate plane is not used by the inspectors?—No; that is a scientific instrument; it weighs more accurately, but it would not do for an inspector; it is so slow in its action that it would not do at all for the inspectors.

723. With regard to the commercial balances used generally for buying and selling, and with weights in the pans, are there many different descriptions of them?—I may say a thousand or more.

724. What are the main points of difference?—Chiefly in the adaptation to particular trades; almost every trade has its own fancy as to the construction and the convenience of the trade.

725. In the balances required for weighing particular commodities, is there much difference in their construction and cost according to whether they are used in large shops in more wealthy neighbourhoods or by small traders in poor neighbourhoods?—All that depends upon the nature of the trade; each trade has its own peculiar balance for weighing. We will say that butchers generally have one kind of scales, and grocers have another, and druggists have a third; every particular trade has its own description of scale. We are sending out some this morning to supply an ironmonger where there is a hook attached for weighing wire; the scale is to weigh nails and brass and copper, but the hook at the top is for weighing wire, when wound off the rings as they hang over the counter; so that every trade generally has its own peculiar balance or scale.

726. Do you know any instances of tradesmen being convicted in consequence of their having bought cheap balances of faulty construction?—There have been many instances. They do not come to a respectable tradesman for them; they go to jobbing workmen who start in the way of business, and who will make those faulty balances; but no respectable tradesman would make a faulty balance.

727. Could you give the Commission any information as to the balance ball question, as to whether any balances are now constructed and sold with an adjusting ball that cannot be tampered with by a tradesman?—Adjusting balls never could have been tampered with by tradesmen. I cannot understand the mistake that has arisen about the question of balance balls. I am aware that a decision has been given against them by the Lord Chief Justice of the Court of Queen's Bench, I think it was, but I fancy that he had been misinformed entirely. I understand that he was informed that they were intended for fraudulent purposes. My idea is that they are intended to prevent fraud, and to regulate the balance, because we, scale-makers, say to our customers, "You must be "answerable for your scales being in fault, you must "see to them every morning," and unless they have some means of regulating the balance, such as by a balance ball, dropping in a shot, or taking it out, it is impossible for them to regulate the balance.

728. How was it, do you suppose, that no additional evidence was called to prove that point on that occasion?—It was got up as an *ex parte* statement. I believe that balance balls are for the protection of the public, because a person who wanted to commit fraud would not do it by means of a balance ball. The balance ball takes some time to screw and unscrew; it is filled up with shot, and you either add or take from it, according to the state

of the atmosphere. When I say the state of the atmosphere, a cheesemonger or a butcher, for instance, on a damp day would find that his scales may perhaps be half an ounce or an ounce wrong, according to the temperature and the moisture, but he regulates them by means of his balance ball, and unless he can do that I do not see how he can be right unless he puts a moveable weight on. That is the object of people who want to commit fraud; they always put some moveable thing, such as a penny piece, upon the scales, which they can take away in a moment, but a balance ball takes a minute or two to unscrew. I think that balance balls are for the protection of the public, and I fancy you will find that almost all persons acquainted with the trade will give the same testimony.

729. Do you contract to adjust and keep tradesmen's balances in proper order?—Yes, we do with regard to their weights and scales.

730. Are such balances generally kept in fair order?—Our men generally go round periodically, and if they find that the balances require repair, they send them in, but if not they oil them and clean them and keep them in repair; but it is a condition which we lay down with all those with whom we contract, that they shall be answerable for their balances, and that they shall see every morning that their balance is correct, because although our men may make the balance to-day quite correct, to-morrow with a change of temperature it may be incorrect. To-day is a dry one, to-morrow may be a moist one, and moisture operates particularly on wooden scales and copper scales. The copper scales used by grocers or cheesemongers will contract verdigris. It is astonishing how the humidity of the atmosphere will change a balance, and for that reason the balance balls are so necessary.

731. (*Mr. Cave.*) I suppose that the changes in the scales themselves caused by the temperature, or by the state of the atmosphere, is nothing compared with what the state of the atmosphere brings about in the things that are weighed, is it?—The state of the atmosphere would bring about changes in the goods, but not so much as with respect to the scales, because the scales present a larger surface. The goods that are weighed are kept in a drawer or in a box, and not exposed to the atmosphere generally.

732. Supposing a person bought a pound of sugar on a wet day, the sugar would weigh much heavier, would it not, than after several dry days?—It might a little, but of course, taking its bulk into consideration, it is not exposed so much to the atmosphere, whereas the scales are constantly exposed. The sugar would be taken out of a drawer.

733. (*Chairman.*) How often should a tradesman's balances be adjusted?—We say that they ought always to have them adjusted four times a year, but we recommend that they should have them adjusted six or eight times. It depends upon what they will pay; it is a question of payment.

734. What is the cost of adjustment?—That depends upon the number of scales that they have. We will say, in the case of a tradesman with one large beam and two small beams, and about one ton of weights, we should charge about 1*l.* a year for going four times to attend to them. We are answerable for the weights if seized, but for the balances we are not answerable, because we say that that depends upon themselves, and every morning they must see that the balance is correct. The usual mode is to make them oscillate, and if they oscillate freely without showing any indication either one way or the other, they are correct.

735. (*The Master of the Mint.*) How can they manage to adjust the balance without a ball?—It is only done then by fixing a piece of metal on, which is so objectionable. A piece of metal can be easily removed in a moment, but with a balance ball it is suspended from the top, and has to be screwed or unscrewed, and we have no means of doing it honestly without a balance ball.

736. (*Mr. Cave.*) A piece of metal is equally illegal with a balance ball, is it not?—Quite as illegal. The only other method is to scrape the weight-scale, if too heavy, but if too light then you must put something on.

737. (*Chairman.*) There is no way, if they are too light, to correct them, except by methods which are illegal?—Not that I am aware of.

738. In short, a tradesman cannot keep his balance correct without coming into conflict with the law?—He cannot.

739. Have you considered whether it would be expedient to require that all commercial balances and weighing machines should be tested and stamped before being sold and used?—It would be difficult to adopt that system in this country; I am aware that it is adopted in France, but there every part of a balance is made to a gauge, like a watch; if one part breaks you can take another to fit in, but it is not so here in England; every balance is made intact in itself; you cannot apply it to another scale or balance.

740. In gas meters, the principle is established by law, is it not, that they must be tested and stamped before being sold and used?—Yes; but then they have a different mode of construction.

741. You think it would be very difficult to require balances and weighing machines to be tested and stamped?—I do not believe it would be possible; at least not under the present system. If we were to have a system the same as they have in France we could do it, but we should have to change our system entirely.

742. You mean, that if a machine once tested and stamped got out of order it would be worse than if it had never been stamped?—I will suppose this case: that if we had one of our balances stamped to-day, and to-morrow any fraudulent person were to interfere with it, the inspector would have no means of knowing whether it had been interfered with prior to the stamping or afterwards.

743. Could not you stamp it with the date?—Even then it would carry with it a false authority, because if we had it stamped to-day correct, any fraudulent person wishing to make it incorrect could do so.

744. You mean after he had bought it?—Yes.

745. But it would be a protection to you or to any large firm to know that it went out correct from you, would it not?—It would be no protection unless it had the Government stamp. We generally stamp our own name on it as a protection.

746. But if the Government tested and stamped all scales and weighing machines before they went out, that would at any rate certify that they had bought them good, would it not?—Yes it would unquestionably, be a certificate, the same as with regard to the weights; but I do not think it practicable upon our present system of constructing balances, because they are not made upon a gauge here; each one is independent of the other; for instance, with regard to that pair of scales on the table, if you were to take the pan or beam of that pair of scales you could not apply it to any other without re-adjustment.

747. But the scale, as a whole, must be stamped as being an equal balance, must it not?—No; because you can detach portions of it.

748. (*Professor Miller.*) Would not your stamp be a guarantee that the two arms were very nearly equal?—That would be so, but then we adjust all scales independently of any other scale.

749. But would not the stamp itself be a guarantee that the two arms were equal; that is to say, if you put a pound weight in each pan it would very nearly balance, and at the same time if you put an ounce weight in each pan it would very nearly balance?—That could not be done by the mode in which we construct our scales, because although the two ends may be equal, yet the centre pin might change it altogether.

750. That implies, does it not, the centre pin being fastened in very insecurely?—If you were to have the centre pin fixed before it was stamped that would do; but what I wish to convey is this: that according

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to our principle of constructing balances, I do not believe it possible that they could undergo inspection and stamping, the same as in France, because in France they are all made to a gauge, and if we were to make to a gauge we could do so, but that would cause such a revolution in the trade and the habits and customs of the people that it would be almost more difficult to carry out than changing the system of weights and measures.

751. (*The Warden of the Standards.*) Would not stamping the beam be a certain guarantee that when made the balance was a true one, and would not it be a certain guarantee that the balance was constructed on a proper principle?—That would be so, but the expense of inspection would be so great that unless you had one system of construction, it would be impossible to carry it out. It would take an inspector one or two hours to test each beam that is brought before him; but if they were constructed on one general principle, it would not take him two minutes. Our system being so various, and there being no uniformity, I do not think that it would be practicable. It could be carried out, of course, but it would be attended with so much expense as to render it almost nugatory; it could be done, but with immense difficulty. I will take for instance a watch. I do not know much about watch-making, but I am told that in Switzerland they construct the works of a watch by gauge, and one wheel or one centre pin may be applied to almost any watch; there is no difficulty about it, and you find it act perfectly. If we could adopt that system here with our scales, then it would work well, but we have no uniform system of working. Each pair of scales is made independently of any other; it is intact in itself, and you cannot separate it.

752. Then the great difficulty you think would be in the inspectors being able to give up sufficient time and attention for testing all the balances?—Yes; that would be the difficulty.

753. (*Chairman.*) As to steelyards and large weighing machines used with special weights adapted to them, do you deal in those?—Yes.

754. Do you construct them?—Yes.

755. Have you considered the expediency of testing and stamping that class of machines?—There again, each steelyard and each weighing machine is independent of any other. There might be a scale that one pound should represent a hundredweight, and that weight could be stamped; but hitherto we have not adopted that system.

756. Would you think it inexpedient?—Upon our present system of construction, I think it would be inexpedient. I think it very desirable, if it could be carried out; but I think it almost impossible now. Here on the table before me is a 56 lbs. weight for a lever machine; that weight is cast out of a mould, and in order to correct it, to adapt it to a weighing machine, we drill holes. Perhaps if I were to try it with one machine I should want to make two holes, and with another three holes, and with another four holes, so that we have no standard.

757. The stamping of one machine would not be any guarantee for another, but it would be a guarantee for that one?—Yes, it would, and I think it would be desirable, if it could be enforced, that one pound should represent one hundred pounds; we could then adjust the weight accurately, and of course it would have to be the standard weight.

758. (*The Warden of the Standards.*) Would there be any difficulty in adjusting the lever to the weight instead of the weight to the lever?—There would be a little difficulty, but we should overcome the difficulty very soon. When we make French machines, we find no difficulty in making the weight accurate.

759. (*Chairman.*) You are probably aware that in the French metric system all special weights so used must be metric weights of legal denominations to which each machine must be adjusted; do you think that a similar regulation as to our weights could be introduced?—Yes, they have 1 kilogram to represent 100 kilograms, and we might adopt the same system.

760. (*Professor Miller.*) If I understood you rightly, you said that you have constructed French weighing machines?—Yes, we have done so, and balances also. I would observe that in the event of this weight before me being used, or being applied to some other machine, it should still represent that 56 lbs.

761. (*Mr. Cave.*) Then the lever must always be the same length?—Either the same weight must be used, or the same length. We sometimes alter the lever by the weight, and sometimes by the length.

762. The lever itself would have to be altered, would it not?—Yes, it would have to be altered.

763. So that all levers would have to be the same with regard to weight?—No; they would not all have to be the same, because as you lengthen the lever you do not require it so thick; but if you shorten it you require it thicker and heavier.

764. But each lever would have to weigh by weights exactly similar?—Yes.

765. And therefore the weighing power of the lever would have to be similar in each case?—Yes, and that would be desirable, because there is no means of testing large weighing machines on this principle now, and it is the cause of great dissatisfaction. The inspectors find great difficulty in dealing with them. Indeed we had a case some 10 or 15 years ago, in Cheshire, where an inspector seized a weighing machine because it was incorrect. It was a ton machine, and he tested it with a 56 lbs. weight. We contended that that was an imperfect mode of testing, and that he ought to have had a ton of weights to have tested the machine. In consequence of that some legal dispute arose, and the authorities of the county of Chester requested us to supply forty 56 lbs. imperial weights, and we passed seventeen of them through the Exchequer Office here, and the fees to legalize those weights came to nearly 4*l.* for each weight.

766. To whom was this paid?—It was paid to the Exchequer Office. The stamp alone for each indenture was 1*l.* 15*s.*, and as much more for each counterpart. I think the fee for the weight was 7*s.* So that it was more than 65*l.* in fees and stamps that we paid for those seventeen 56 lbs. weights.

767. Is that weight which you have in your hand a 56 lbs. weight?—Yes, it is a 56 lbs. weight on the lever, but it merely represents a 56 lbs. weight in connexion with the balance to which it is adjusted; it has no relative weight; it may be either half a pound or three-quarters.

768. The question is whether you could not adopt weights of legal denominations for these weighing machines?—If you were to establish the system of 1 lb. representing a hundred weight, it would be attended with great difficulty, but it could be accomplished.

769. (*The Warden of the Standards.*) It has been represented to me that instances have been known of special weights of that kind being used as ordinary weights with ordinary scales, have you ever heard of such instances?—I have never heard of such a thing, and I scarcely think it possible; for this reason, that no one would use that weight as a half-pound weight or a pound weight, because it is made so differently. The slit which you see in it here to hang on the scale shows clearly that it is not an ordinary weight.

770. Those special weights are made of different forms, are they not, according to the different weighing machines that are used?—Yes, they are made of different forms, but I have never known an instance of the kind to which you allude.

771. Would there be much difficulty in converting the special weights now used upon those weighing machines, so that they should be made of legal denominations?—I think not. I see no difficulty if the system that I have just shadowed forth were to be carried out of 1 lb. to represent 100 lbs., or 1 cwt., the same as it is in France.

772. There would be no difficulty in making new weighing machines according to that principle, but

would there be much difficulty in converting the existing weighing machines?—No, not very much.

773. (*Chairman.*) What is the usual practice in adjusting steelyards on similar lever weighing machines; is the weight itself or the length or weight of the lever altered?—Both. The lever has a moveable ball at the end by which it may be lengthened or shortened.

774. Do you generally alter the weight on the lever. We alter both sometimes. We generally like to start with the ball of the lever in the centre, so that in case of its becoming incorrect the parties having it can balance it themselves. We have to drill weights in this way in order to adjust them.

775. Are your weights and measures subject to inspection by the local inspector?—The weights and measures that we supply to our customers are.

776. Have you considered the question of making any, and what, allowance of error in commercial weights and measures?—There should always be some slight allowance of error, because by friction alone a weight, if made a standard weight to-day, would become quickly incorrect, or the dust alone that the weight may take up may make it incorrect.

777. What proportion of error would you allow?—I think there should be a quarter of an ounce in a 56 lbs. weight.

778. Have you any fault to find with the mode in which the inspector exercises his duties, or with the existing system of inspection?—We are in the city of London, where the inspectors are paid by the corporation. They have none of the fees, and they perform their duty in a most satisfactory manner; but there are instances in the other districts of the metropolis where the inspectors have a portion of the fees, and it is found to be most oppressive.

779. Do they have the old weights?—On conviction, they have also the old weights and measures that they seize. In a return presented to the House of Commons it was stated, with regard to the inspector of the Tower district, that in one year his convictions amounted to nearly 400*l.*, and he had half of that amount in addition to his salary.

780. Do you think that there were unjust convictions in that case?—I think that it is an inducement for a man to act unjustly.

781. The person injured would have a right to legal redress, would he not, if he considered that he had been unjustly used?—Yes; but he has scarcely any remedy. For instance, an inspector goes into a poor man's shop, and he says, "Your balance is in-"correct; it is two, three, or four drams incorrect," and perhaps the person may not be aware of it; but the inspector summons him before the magistrates, and he certifies that they are four drams incorrect, and a conviction follows, and the inspector has half the fine.

782. Does the magistrate convict on the simple statement of the inspector?—Always on the statement of the inspector and of a witness.

783. Do not you think that there are any counter instances of negligence on the part of the inspector where he is not paid by fees; is he not apt to be negligent of his duties on account of the absence of that stimulus?—I think there are many cases where the inspectors have been negligent of their duties. I have known cases of their receiving their salaries and not performing their duties; but now that the general inspection of weights and measures has passed into the hands of the constabulary, they perform their duties most satisfactorily.

784. I suppose the object of paying them by fees was to sharpen their zeal in looking into things, and that they might not neglect their duty?—It is not always so, because in the city of London, where there are no fees paid to them, no men could perform their duties better. The way they adopt is this, and I think it is one that should be recommended in all cases. If they find a balance or weight incorrect, they say, "Your weight or your balance is incorrect, "and you must get it attended to," and they come round again in about a week or a fortnight, and if they find that the balance or the weight has not been attended to, then they summon the people; but they give them an opportunity to correct their weight or balance arising from any mistake or ignorance on their part.

785. Do you think that where the inspector is paid by fees he seizes weights as false that he knows to be true, and obtains convictions against people who are really innocent?—I fear he does. He takes the weights away with him, and the people have no means of testing whether they are correct or not.

786. Do you mean that it is in every case absolutely in the power of the inspector to obtain a conviction against any person he pleases, whether rightly or wrongly?—I believe it is, if he is a bad man; but I do not mean to say in all cases. But if they are not paid by fees there is no inducement to act unjustly.

787. But if any person chose to make that use of his power he could always obtain a conviction?—I would rather put it that the inspector would have that kind of influence.

788. He has that power. Any inspector can always obtain a conviction from a magistrate, can he not, when he likes?—It is very much like this case:—If a policeman were to say that I had assaulted him, he would very likely get a conviction. These officers are generally believed, because it is supposed they act fairly and rightly; and I believe they do act fairly and rightly in most cases; in all cases, I may say, where no fees are shared by the inspector.

789. You say that the certificate of the inspector that the weight is false is absolutely final?—It is final, and for this reason, that the weights and measures that are seized are in his custody, and if he were a bad man he could tamper with them.

790. So that a bad inspector might keep a whole neighbourhood in terror, and might obtain the conviction of any person he pleased?—Yes, he might.

791. (*Mr. Cave.*) Could anyone who was accused of having false weights refuse to allow the inspector to take them away?—He could not legally. The Act of Parliament gives the inspector power to seize the false weights and measures, but not the scales.

792. Supposing the owner of the weight or measure denind that it was false, or refused to allow the inspector to take it, and it turned out that it was a just weight, what would happen?—The inspector has the power by law of seizing any weight or measure that he condemns.

793. Do you mean that it is impossible to refuse to allow him to take it, even although the person knows that the accusation which the inspector brings is not a just one?—The Act of Parliament authorizes him to take it, and he would assert his authority.

794. (*Chairman.*) Then it comes to this, does it not, that the inspector has the power, whether he uses it for the purposes of extortion or malice, or any other kind of thing, to obtain a conviction against any tradesman?—Yes, he has.

795. (*The Warden of the Standards.*) Cannot a tradesman whose weight is just insist upon having it tested in court?—He can, but it would be in the custody of the inspector during that interval.

796. If he altered it he would commit a fraud?—Yes, but who is to find him out? he might substitute another weight for it. The objection is to allowing any man to be placed in such a position as that avarice should operate against the due performance of his duty. Where the inspectors are not paid by fees, I believe they perform their duties fairly and conscientiously, but where they are paid with fees, and are bad men, it is an immense vehicle for them to commit fraud upon the public. In the case that I have alluded to, the fines were double or treble what they were in any other district, and it was known that the man (he is dead now) had for years systematically made those convictions, and it was believed that he had done so for the purpose of increasing his own income.

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797. (*Chairman.*) Would not it be equally easy for a man to obtain a bribe, and failing that, to obtain a conviction against any tradesman who would not pay him, if he has this terrible power of convicting anybody he pleases?—No, because the man who was paid a salary would feel that his position would be jeopardized by such a course.

798. There would be no jeopardy whatever in any amount of oppression exercised by a man who is paid with fees; he would run no risks whatever of detection?—None.

799. (*The Warden of the Standards.*) Do you think that the inspectors should not have the power of seizing weights?—I think it a very wise power, and a very salutary custom, but my complaint is against any inspector seizing weights who has a portion of the fees; if he has not a portion of the fees then he acts fairly.

800. Do you think that he ought to have the power also of seizing balances?—I see no reason why he should be debarred from seizing balances.

801. You are aware that at the present time the law in Ireland is that an inspector may seize balances, either in shops or in open places, but that in this country he may seize balances in open places, but he cannot seize them in shops?—That is, I believe, under an Act of Parliament, introduced about six or eight years ago; that is the present state of the law, he can do so in open places, but not in shops.

802. Do you think that that law requires altering, and that there should be one law for the whole kingdom?—I think that there should be but one law for the whole kingdom. I never could understand why an inspector should be allowed to seize weights and measures, and not balances, unless it is that the balances are generally more costly than the weights and measures, and also that it would put a stop to their trading. When you take away a weight, you may have another purchased for it in a very short time, but a balance is a more expensive thing, and you might interfere with the carrying on of a man's business for a day or two days.

803. Do you think that if the law was that an inspector might seize a balance in case of any fraud in connexion with it, although he might not seize it if it was merely accidentally defective, that would be a good regulation?—I think it would be a very good regulation if he could clearly establish the fraud.

804. (*Mr. Cave.*) Have you any experience of the working of the juries or committees which are formed in some parishes in London for inspecting weights and measures?—Yes, I have some experience of them, and I think it is a most ridiculous system, because they go round, and they have a beadle marching before them with all the pomp and vanities of his office, and the people all round the neighbourhood know that he is coming, and if they have any imperfect weights or measures, they put them out of the way of the jury.

805. I see that in one parish they have been very active lately in publishing the names of several people who have been detected with false weights?—Yes, they have done so, but I do not think that that has originated through the committees or a number of men going together. I think that has been through the inspector going separately, and coming down upon them at their busy times, when they were using their dishonest weights.

806. (*Chairman.*) Have you any observation to make upon the practice existing in some districts of the inspector adjusting from time to time as well as verifying commercial weights and measures?—Yes, I have heard of a case to-day in the neighbourhood of London, where a scale-maker goes round with an inspector to adjust weights and measures, and it is supposed that he shares with the inspector a portion of the fees which he receives for that adjusting.

807. Have you ever heard of cases where inspectors undertake regularly to put scales in order, and to adjust them, and make a regular trade of it?—In Liverpool and Manchester they make a regular trade of adjusting weights and measures, and they have done so for years, in opposition to the Act of Parliament, as I conceive. I hold in my hand a memorial from the various scale-makers of Liverpool, 20 in number, who memorialised the Town Council against the custom of inspectors there adjusting weights and measures, and if you will allow me I will put in this memorial, because I think it contains valuable information; it is a document which I have received from the firm of Messrs. Thomas Cheshire and Company, the largest scale-makers in Liverpool.

(*The witness delivered in the following memorial.*)

"To the Worshipful the Mayor, the Aldermen, and
"the Burgesses of the Borough of Liverpool in
"Town Council assembled.

"The respectful Memorial of the undersigned Scale,
"Beam, and Weight and Measure Manufacturers
"Adjusters.

"Sheweth,

"That your memorialists regret to find that you, as the public guardians of justice between buyer and seller, have not only appointed an inspector of weights and measures, as directed by Act of Parliament, but that you have also an establishment of workshops and workmen for the purpose of adjusting them. That your memorialists cannot but regard such a proceeding with alarm, as an important part of their trade has suffered injury.

"That your memorialists, therefore, respectfully solicit your attention to the following statement:—

"That Liverpool being an important town for the manufacture and sale, for home use and export, of the articles in question, the public convenience does not require an adjusting establishment, and competition will sufficiently secure the public interest and convenience.

"That Manchester and other places where the corporation have become adjusters, thereby violating the law, have not the same local convenience, and therefore though those respective corporations have exceeded their powers, as will hereafter be shewn, it may be said that they have done so for the public advantage and without injury to the resident tradesmen.

"That in the metropolis, where, as in this borough, the manufacturers and adjusters of weights and measures are numerous, the corporation appoints inspectors for the public protection, but does not interfere with the profits of trade by employing workmen. That the fees for affixing the corporation stamp upon weights and measures, which the Act provides for, are evidently assigned to meet the expenses of inspection, and will, in the opinion of your memorialists, be sufficient for that purpose; but if otherwise, your memorialists doubt whether your honourable body should seek to supply the deficiency by the profits of adjusting in the present working establishments, set up in opposition to the wishes and interests of many of your ratepayers.

"That the 25th section of the 5th and 6th of William the Fourth, the Act under which these appointments are made, conveys the powers for appointing inspectors, but explicitly describes them as 'inspectors or exa-'miners of weights and measures,' and that no part of the Act authorizes the appointment of adjusters.

"That the 21st section, describing the tools which are to be used, names none of the tools necessary for adjusting, but simply 'good and sufficient stamps for 'stamping or sealing of weights and measures.'

"That the schedule of fees appended to the Act warrants payment only for 'examining, comparing, 'and stamping,' and not for adjusting.

"That a former Act of Parliament allowed manufacturers to act both as inspectors and adjusters, but the evils which arose from the combination of such opposing duties in the same officer led to its repeal; and the 23rd section of the Act now in force provides 'That no maker or seller of weights or measures, or 'person employed in the making or selling thereof,

"shall be appointed an inspector under the provisions "of this Act.'

"That if it is said an adjuster of a weight is neither a 'maker nor a seller,' your memorialists respectfully suggest that it is the adjustment which converts a piece of iron or brass into a weight, that in many cases it is impossible to distinguish between making and adjusting; that the adjustment is the very process which renders the inspection necessary; and that a person adjusting a weight is strictly employed in making it, and is therefore included within the prohibition of this clause.

"That the identity of making and adjusting is further proved by the fact that some of your memorialists by the operation of this clause were prevented serving as inspectors, which they might have done under the provisions of the former Act.

"That as the law appears to make no distinction between a public body and a private trader, it would, in the opinion of your memorialists, be inexpedient that the corporation of this borough should set up a claim to such distinction, and thus make themselves competitors with the regular manufacturer and adjuster.

"That your memorialists humbly remonstrate against the inspection of their weights and measures by a public officer, who, in his capacity of an adjuster, and as the representative of your honourable corporation (the proprietors of the present working establishment), has necessarily become their rival in trade, instead of being, as he ought to be, an impartial and disinterested judge. And your memorialists respectfully request that the duties of inspector may be restricted to the 'examining, comparing, and stamping 'of weights and measures,' as directed by the Act of Parliament, and that the practice of adjusting, which is so great an injury to your memorialists, may be at once discontinued.

"That from the preceding statements your memorialists deduce the following inferences:—

"1st. That the present establishment of workmen and workshops is an interference with the rights and interests of the private trader, and not promotive of public interests or convenience.

"2nd. That the circumstances of Manchester, and other places where the corporation have become adjusters, are so essentially different from those of Liverpool, that they constitute no precedent for this borough.

"3rd. That it is opposed to precedent in the metropolis, where the inspectors only examine and stamp, but do not adjust.

"4th. That, in the opinion of your memorialists, it does not comport with the dignity of a municipal government to enter into competition with private traders, who, as large contributors to the borough rates, are rather entitled to protection from the authorities of the town, than to be subjected by them to unfair and unnecessary competition.

"5th. That such a special application of public funds may form a somewhat dangerous precedent.

"6th. That the appointment of adjusters exceeds the powers which are vested in corporations by the Act of 5th and 6th of William the Fourth, under which those appointments are made.

"Having, as a part of your constituency, presented this statement, your memorialists trust that you will arrive at such conclusions as shall be compatible with public benefit, with private interests, and with the honour and dignity of your body corporate.

"And your memorialists will ever pray, &c."

Signed by THOS. CHESHIRE & Co., and about 20 other makers and sellers of weights.

Copy of this was sent into the Liverpool Council about 18 years since.

June 14th, 1869. THOS. CHESHIRE.

808. The scale-makers of Liverpool consider that injustice is done to them by this system?—They consider that it interferes with the rights of the trade.

809. That the inspector, in fact, has the advantage that he does not compete with them on equal terms?—He does not compete with them on equal terms, and it destroys their trade. The Act of Parliament distinctly states that no inspector of weights and measures can be a dealer in weights and measures; yet in Liverpool and Manchester, and other towns in Lancashire, they are really manufacturers of weights and measures.

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810. Do you consider that the man who adjusts and repairs weights and measures is to be called a dealer in weights and measures, though he is not selling new ones?—Clearly. Here is a 4 lbs. weight; until that lead is put in I consider that it is nothing more than a piece of iron, which we buy by the ton, but the act of adjusting and putting in that light piece of lead makes it a weight, and then as the Act of Parliament says that no weight or measure maker shall be an inspector, it is clearly an infringment of the Act, I think, when that is done. I will also put in, if you will allow me, a printed list of what the inspectors charge for adjusting weights and measures in Liverpool, it is signed by Mr. Johnston, the chief inspector. Here is their schedule of fees for stamping, and a schedule of their fees for adjusting, and it is those charges for adjusting against which the trade of Liverpool very justly complain. I think the memorial which I have already put in argues the subject very fairly. (*The witness delivered in the following document.*)

OFFICE of WEIGHTS and MEASURES for the BOROUGH of LIVERPOOL.

FEES to be taken for Examining, Comparing, and Stamping WEIGHTS and MEASURES.

Brass Weights.

	s.	d.	
56 lbs.	0	9	each.
28 lbs.	0	6	„
14 lbs. or stone	0	4	„
7 lbs. to 1 lb.	0	1	„
All under 1 lb.	0	0½	„

Each set of weights of a pound and under, 2*d.*

Iron Weights.

	s.	d.	
56 lbs.	0	3	each.
28 lbs.	0	2	„
14 lbs.	0	1	„
7 lbs., and under	0	0½	„

Each set of weights of a pound and under, 2*d.*

Wooden Measures.

	s.	d.
Each bushel	0	3
„ ½ „	0	2
„ peck, and all under	0	1
„ yard	0	0½

Liquid Measures.

	s.	d.
Each 4 gallon	0	9
„ 2 „	0	4
„ 1 „	0	2
„ ½ „	0	1
„ quart, and all under	0	0½

FEES to be taken for Adjusting, &c. WEIGHTS and MEASURES.

Iron or Brass Weights.

	s.	d.	
56 lbs. weight	0	4	each
28 lbs. „	0	3	„
14 lbs. „	0	2	„
7 lbs., and all under	0	1	„

An additional charge of 2*d.* per lb. for lead when any weight in adjusting requires ½ lb. or more lead.

Wooden Measures.

	s.	d.
Each bushel measure	0	6
„ ½ „ „	0	4
„ peck, and all other	0	2
„ yard measure	0	0½

Additional charges for extra work or materials.

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Liquid Measures.

	s.	d.
Each 4 gallon measure - -	1	0
„ 2 „ „ - -	0	6
„ gallon and ½ gallon measure -	0	3
„ quart, and all under - -	0	1

Fees to be taken for Marking Contents on Weights and Measures.

Iron or Brass Weights.

	s.	d.	
56 lbs., 28 lbs., and 14 lbs. weights -	0	2	each.
7 lbs. to 1 lb. weights - -	0	1	„

Wooden Measures.

	s.	d.
Each bushel and ½-bushel measure -	0	3
„ peck, and all under - -	0	1

Liquid Measures.

	s.	d.
Each 4 and 2 gallon measures -	0	3
„ 1 gallon and ½ gallon measure -	0	2
„ quart, and all under - -	0	0½

James Johnston,
May 1st, 1867. Chief Inspector.

811. Has the mode in which the system of inspection of weights and measures is now executed, whether by local inspectors, who are not policemen, or by policemen, who act as inspectors, come under your observation and consideration?—Yes.

812. Have you any remark to make upon the question of whether an inspector, being a policeman or not being a policeman, has any good or bad effect?—I think that an immense benefit has accrued from the inspection of weights and measures being transferred to the constabulary; they carry with them a moral power, and we know that the constabulary generally are well looked after, and are well-conducted men.

813. Do you consider that an ordinary policeman is qualified from his knowledge to act as inspector of weights and measures, or that it should be given to persons of special training for the purpose?—I think if you could get a better inspector than a policeman it would be well, but generally policemen are instructed by their superiors, and if policemen are not educated men they are superior men to others of their class, and they are well disciplined.

814. Have you been in the habit of acting as agent to the local authorities for the official verification in this department of their local standards?—I have.

815. Have you any observations to make upon the practice of the department in their execution of this duty?—No; they perform their duty with great fairness and precision.

816. Have you any remarks to make on the provisional scale of allowance of error now in force, and sanctioned by the Commission?—I think perhaps it would be better if the scale of error should only be in excess rather than in deficiency. I would have the 56 lbs. weight never below the standard, because it might create a difficulty in two sets being compared one with the other; one we will say five grains above, and the other five grains below, that would make 10 grains of difference, and that would be too great a difference. We have sent to us from time to time from a county one, two, and three, or half a dozen, sets of standards, and they sometimes compare those standards one with another, and if they were found to be some in excess and others deficient, there would be too great a difference. I would have the system here as they have it in France, never to acknowledge a deficient weight.

817. You would acknowledge a weight that is too heavy, but not one that is too light?—Precisely.

818. (*The Warden of the Standards.*) Do you think that the present scale of error would be sufficient if it was only allowed in excess?—I think it would.

819. Or would you double the present allowance and make it only an allowance in excess and not in deficiency?—It is now five grains in a 56 lbs. weight, either in excess or deficiency. I think five grains in excess would be sufficient; but I would have no weight deficient in the standard.

820. (*Chairman.*) With respect to the period now fixed by law for the reverification of local standards, namely, not less than five years for weights, and 10 years for measures, do you consider that those periods are sufficient?—I think them far too long.

821. What do you think would be a better period?—If it were to be reduced one-half it would be better; two and a half years for weights, and five years for measures.

822. Do you think that the difference between them should be as great as it is?—Yes; because weights are much more frequently used than measures. I believe it was thought originally that the cost would be too much for adjusting them, and therefore the time was extended.

823. Are you aware that the Commission has recommended in their first Report that the Standards Department should be empowered and required to verify weights and measures, other than standards, on payment of a specified fee, in all cases when they shall be called upon to do so, and special accuracy is requisite, do you think that such a regulation will be of public advantage?—I think it would; in the case of measures of length it would be an incalculable benefit.

824. And you think that commercial measures of length should be verified by this department upon payment of a fee?—Yes. In the case of gun-makers and watch-makers, who make the articles to a gauge, it is absolutely necessary that they should have the best standard placed in their hands, and they would not be able to get at that in any other way, but through this office. This office is supposed to contain the most accurate instrument in the kingdom, and all other standards would be unreliable unless they could have the power of having them tested here.

825. (*Professor Miller.*) I think I gathered from what you said that it was not the practice of the inspectors of weight to use the method of double weighing in testing weights; that is to say, putting the standard in one scale and the counterpoise in the other, and then taking the standard out and putting the weight to be tested in?—No, it is not.

826. I believe it is so in France?—It is; they have a more scientific system of weighing in France than we have here.

827. Would it not be a good thing if we were to insist upon the introduction of that system in England?—I think so, because that overcomes any error or deficiency in the beam.

828. Would there be any advantage in constructing the beam in such a manner that they must do that; for example, might not one arm of the beam be twice as long as the other?—Then you alter the construction of the beam, and you destroy the whole principle of the balance.

829. I mean for the special purpose of the inspector of weights, but for no other purpose?—An inspector of weights should be provided with the most accurate instrument possible.

830. This might be equally accurate, might it not?—I think not.

831. Have you any other mode of insisting upon his using the method of double weighing?—We could so construct the weight scale perhaps as to ensure that, but I have not thought sufficiently on that question; it is a new idea, and I fancy the general directions, that every weight must be tested by counterpoise would at once answer the question. I think it is essential that every inspector should test by counterpoise; it would take a longer time, but it overcomes all inaccuracies of the beam, and that is most important.

832. (*Mr. Cave.*) When you say that you would not recognize any allowance on the side of deficiency in a weight, do you refer to commercial weights?—No, not to commercial weights, to standard weights.

833. Do you think that it would be necessary or

advantageous that the Board of Trade should have superintendents to go through the country and look after the inspectors?—It is the only way to instruct them properly. We must have an educated executive, and unless they were to receive their instruction from some central source I do not see how they are to get it in any other way.

834. It has been proposed that authorative instructions should be given to the different inspectors by the Board of Trade; would that be sufficient, do you think, without having superintendents to go round occasionally and see what was going on?—It would be an improvement on the present system, but it would be far from complete. The most complete system would be to have regular superintendents who were competent to instruct, for although you may find generally that inspectors conduct their business satisfactorily, and with ability, yet there are some who are so stupid that if a superintendent were to go round he could find out immediately whether they were qualified or not; we have no other means of testing them.

835. Or whether they were doing their duty?—Or whether they were doing their duty.

836. (*The Warden of the Standards.*) You are probably aware that in France there are a different set of officers: those who verify and stamp weights and measures, and those who inspect afterwards to see that there are no infractions of the law with respect to the weights and measures. Do you think that such a system, if carried out in this country, would be an improvement upon the present system?—I think it would be a vast improvement upon the present system; it would be a new system for this country; but I consider that the French system is far preferable to ours. They have a system there and we have none here.

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837. Do you think that policemen are generally properly qualified to test and verify all commercial weights and measures?—I think that they are the best materials that you can deal with. I do not see how you can get officers so well qualified from any other class of the community.

838. Do you think that before a person is appointed to test and verify weights and measures he himself should be tested as to his qualifications?—It would be desirable if he could be, but at the present time the police are appointed to that duty by the chief constable. The policeman has no extra pay for it, but I believe the chief constable generally chooses the most intelligent man, and then he has his inspector to superintend as well, so that I think it is a machinery which is capable of great improvement, but still it is the best machinery that you can deal with.

839. Do you think that an inspector of weights and measures can do his duty properly when he has other and more important duties to attend to, such as the duties of the police?—The inspection of weights and measures does not occupy the whole of his time. I think that generally before the police had it the inspection of weights and measures was looked upon as a sinecure by a great many of the inspectors, and that they signally failed in the performance of their duties.

840. At any rate you think that the present system of inspection needs improvement?—It needs great improvement, but I think it is the best that can at present be carried out.

The witness withdrew.

Adjourned to Wednesday next, at 1.30 p.m.

Wednesday, 23rd June 1869.

PRESENT:

LORD COLCHESTER IN THE CHAIR.

LIEUT.-GEN. SABINE, P.R.S.
PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. WILLIAM CAVE FOWLER further examined.

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841. (*Chairman.*) You stated, did you not, in your former examination, that you supplied local standard weights for the use of inspectors of weights and measures?—Yes.

842. Of what metal are local imperial standard weights generally composed?—The measures are made of gun metal and the weights are made of yellow brass.

843. What is the average cost of a set of local standard avoirdupois weights of each description?—From 56 lb. down to half a dram a set may average about 10 guineas.

844. Does the price vary according to the description of the metal?—No; we always send the best metal for standards.

845. Have you any small brass weights for the use of inspectors?—Yes; those weights are made of yellow brass.

846. And of all sizes?—Yes.

847. Do you make any sub-standard weights for Great Britain and Ireland?—Yes. Not for Great Britain, only for Ireland.

848. They are only legal in Ireland, I believe?—Only in Ireland.

849. What opinion should you have of a suggestion which has been made to the Commission that it would be desirable to use galvanised iron weights as subsidiary standards for local inspectors in Great Britain?—The sub-standards answer very well, being made of iron. If you have galvanised iron it tends to increase the cost, although not very much, I believe. The cost of galvanising the weights generally is about 8*l.* a ton or 8*s.* per cwt.

850. Do you find any corresponding advantage in galvanising them which compensates for that expense?—They are better perhaps, but we are scarcely able to give a practical opinion upon the point because so few galvanised weights are used.

851. When they are used, are they generally used by local inspectors or by other persons?—We have never supplied any to local inspectors. It is only in Ireland that those sub-standards are used, and they have generally had the ordinary black cast-iron weights.

852. Do you usually adjust local standard weights before they are sent to the standards office for reverification?—Yes, we have to do so, because they never arrive quite accurate; and even if they were accurate, the very fact of cleaning them would make them inaccurate.

853. In what condition do you generally find them as to accuracy?—They are various. It depends very much upon the care bestowed upon them by the inspector. Some men are very careful, others are very slovenly. We have known instances where standard weights have been used as hammers by some one (I will not say an inspector), and they have become quite indented, and in such a state that they were scarcely fit for standards.

854. Do you find that they have been altered or

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adjusted in the several localities?—Frequently we find that weights have pieces of lead or pieces of solder put on them by the local authorities.

855. Has that been done with a view of making them right again?—With a view of making them correct. They have perhaps received a set of weights that have been reverified at the Exchequer, and then they try to correct all their other standards by them before the local magistrates, and if they are deficient they add the solder. We adopt quite a different system in adjusting. If a weight is deficient we drill a deep hole and place lead in it, we then plug the hole firmly with brass, so that no appearance of mending the weight can be seen. The lead being specifically heavier than the brass enables us to do so.

856. (*The Warden of the Standards.*) Have you generally found that where they have been corrected locally they have been improperly corrected?—They have no knowledge of the proper way of correcting them. The only way they correct them is by placing solder on them.

857. Do you think that it is improper that the inspectors should be allowed to correct their standards in that way?—I think that the standards are not likely to be correct by such a system, because if they make them correct to-day, by placing so soft a metal as solder on, they will wear away quickly; whereas if adjusted properly the brass that we force in becomes a portion of the weight, and you can scarcely see where the weight has been mended, it is done with so much skill.

858. I think you sent some standards to this department that had been adjusted in that way, which were exhibited before the Commissioners, and which were very roughly adjusted?—Yes, those were standards which they may have had adjusted in the country. They also try in the country to adjust them by introducing brass, but in that case the brass projects beyond the ordinary weight. They have no knowledge about introducing the lead, and it requires a skilful workman to do it properly, to mend a weight so that the eye cannot detect it.

859. (*Chairman.*) Can you give the Commission an idea of the greatest errors that you have found in those local standard avoirdupois weights?—Each set of standards is independent of others; the majority of them are fairly correct. We have had instances where there has been a manifest error, such as $\frac{1}{2}$ lb. in a 56 lb. weight.

860. Is that the greatest error you have ever found?—It is the greatest I ever remember.

861. Is that often the case?—No, not often.

862. Not even in weights which are used as hammers?—It is those that I allude to.

863. (*The Warden of the Standards.*) In such a case as that 56 lb. local standard weight, would it have been used up to the last moment for the comparison of weights and measures in that district?—In the case I allude to I am inclined to think that the standards had not been used as standards for many years, but doubtless all the standards that were incorrect were used in the district whenever the people came to them to have their weights adjusted.

864. And you cannot positively say that that 56 lb. standard weight that was incorrect $\frac{1}{2}$ lb. was used for the comparison of weights and measures in the district?—I cannot say that positively, because they were sent to us to be adjusted, and we adjusted them accordingly. Indeed I may say, as a rule, we scarcely know the deficiencies of the weights and measures, because we have not attempted to ascertain them. When we have a weight or measure sent to our house to adjust, we know that, if correct before, the very process of cleaning it will make it incorrect; therefore we assume that the weights and measures after they have gone through the process must be adjusted, and we commence adjusting them, so that perhaps we have not had an opportunity of watching the inaccuracies as closely as we might have done.

865. (*Chairman.*) You do not suppose that this 56 lb. weight that was $\frac{1}{2}$ lb. wrong had ever been so used that tradesmen's weights had been declared false if they did not agree with it?—No doubt many weights are incorrect, and the tradesmen's weights have to be adjusted by them. I could not say for this one set that I am speaking of, because they were quite an exception to the rule, they were in so bad a state.

866. What is the greatest amount of error that you have frequently found?—As I said before, we very seldom have tried the weights and measures to ascertain their inaccuracies, and I think you will find that the trade generally will return a similar answer.

867. I am speaking now of inspectors' weights, not of commercial weights?—It is of inspectors' weights that I am speaking. We have not attempted to ascertain the inaccuracies. If we had had any idea that such a knowledge was necessary we would have tested every set of weights and measures when they came to us, but we very rarely do so. We know from their appearance whether they are correct or incorrect, and as I stated just now, even if they were quite correct, the very process of cleaning them and making them look equal to new to be brought up here would make them incorrect. Take a 56 lb. weight, for instance, the proper way to clean it is by oil and rotten stone, and as they only allow at the Board of Trade a very small weight in excess, the very process of cleaning would make them light, and that shows the necessity of adjusting them before we can bring them up here.

868. (*Professor Miller.*) Would it not be convenient, as a means of correcting a weight, to use galvanised iron, for then when the weight was too light the weight might be restored by merely dipping it in the melted zinc?—We should be unable to tell what amount of deposit to place on it.

869. You could grind off the excess, could you not?—It would not be so durable as brass; brass is chosen on account of its durability. Even galvanised iron is liable to a little corrosion. Galvanised iron weights turn black in the course of a short time; they very soon lose their silvery appearance. I think that in two years a galvanised iron weight would be quite black. The galvanising does not tend to harden the weight; it rather tends to make it decay and make it more porous. It destroys a great deal the tenacity and durability of the iron. If we wanted to add strength to iron, or to have iron as strong as it could be, we should not think of galvanising it. Brass and gun metal are found to be the most durable metals we can use for weights and measures. Indeed we have frequently had brass weights that have been sent to us for adjustment that have been in use 30 and 40 years; in fact we have now by us some old brass weights I think 100 years old; and as for measures, we had a gun-metal bushel sent to us for old metal (it was a wine measure) that bore the stamp of 1688, and I will venture to say that that measure was in as good a condition when we broke it up as anything we can make now; in fact I question whether we could make a casting now superior to that measure of 1688. I mention this as an instance to show how durable are the measures when made of proper metal.

870. (*Chairman.*) As to imperial commercial weights, are you engaged largely in the sale of commercial weights, or weights used for buying and selling?—Yes, we are.

871. Do you manufacture them?—We do.

872. Speaking for the present only of avoirdupois weights, of what material are the avoirdupois commercial weights composed?—Mostly of iron.

873. Are any of them composed of brass?—Yes, a few are composed of brass.

874. Are those the smaller weights?—The smaller weights are of brass, and the larger ones are of iron. The weights of 16 ozs. down are generally brass.

875. Then the brass weights are the most numerous, are they not, because I presume you make more small weights than large ones?—Even that is difficult to say, because a commercial house may have several tons of 56 lbs. weights, whereas they would only

require two or three small weights, or very few, but they require to have a great number of 56 lbs. weights.

876. Can you give the Commission any idea of the proportionate number of weights of each description of metal?—That is a very wide question; it could only be a wide guess. It would be impossible almost to estimate the number of weights in use throughout the United Kingdom. Take two houses, for instance, both commercial houses, next to each other; one might have two or five tons of weights, and another might have but a very small quantity. A grocer, we will say, would have five tons of weights, whereas a silk merchant who lived next door might not have more than two cwt.

877. (*The Warden of the Standards.*) May we take it as a general rule that weights of 1 lb. and upwards are of iron, and the weights of ½ lb. and under are of brass?—There are no iron weights less than a quarter of a pound, or but few; but generally speaking weights of less than a quarter of a pound are of brass. There are a few iron weights of half a pound down to ¼ oz. The majority of weights from 16 ozs. down are of brass; all above are generally of iron. There are some brass weights, but shopkeepers do not in general like to purchase brass weights, because they offer a temptation for robbery. Bakers like to have 4 lbs. and 2 lbs. brass weights, but in a great many instances they have discontinued the use of them, because when a customer comes in to buy a loaf of bread he might put a 4 lb. weight in his pocket and then go to a marine store shop and sell it for 6*d.* or 7*d.* a pound.

878. So that that has driven brass weights out of use?—Yes, it has in a great measure driven brass weights out of use.

879. (*Chairman.*) As to the form of these weights, what is their general shape?—Large weights, 56 lbs., are conical ring weights, and there are also square bar weights.

880. Are they employed for different purposes?—No, it is a matter of choice. The square bar weights pack more easily on a scale; you can better get two tons of square weights on a scale than you can two tons of ring weights; they pack more closely. The ring alone prevents them packing so closely as the bar weights.

881. Are there not spherical or bell-shaped weights made?—Only for standards, not for commercial weights.

882. Have you any hexagonal weights?—No, there are no hexagonal weights; there are belonging to the French metric system.

883. But they are not used in England at all?—They are not used in England at all.

884. Are there weights with knobs or handles?—Yes, we have them with knobs and handles.

885. What class of weights are those chiefly?—Porcelain weights are always made with knobs: those are used by shopkeepers, and are made in sets from 7 lbs. down to one ounce.

886. And weights with handles, what do you say with regard to them?—Those are bell weights, and those are not much used.

887. You stated that they were used as standards?—Yes. I said just now that bakers use 4 lbs. brass weights, but they are discontinuing their use on account of their liability to have them taken away; they are brass bell weights, with handles.

888. (*The Warden of the Standards.*) Are porcelain weights very largely used?—Not largely used. There are serious objections to them. They are very clean and look very nice for cheesemongers, but they absorb the water. If they put them in a pail of water to clean them they absorb the water; it gets between the interstices of the weight. I have sent some samples here, from which I could show in a moment what I mean. Here are two 1 lb. weights on the table before me, the one is a 1 lb. porcelain weight filled and the other not filled. They have to be prepared first and have lead poured in them. If they are not prepared first by process, the weight will split; but when this weight is immersed in water for the purpose of cleaning, the water collects around the interior of the weight, and they therefore are objected to; there is a further objection to them, that when the juries are seen coming round, if persons have those weights at all light they put them in a pail of water and make them heavy, so that they deceive the jury. But I do not place any reliance upon such an objection as that. My chief objection to them is on account of their large bulk, on account of their liability to fracture, because it is a glass surface, and on account of their suction; they never can be extensively used from those three causes. A 7 lb. porcelain weight is very large.

889. Can you tell us at all the proportional number of commercial weights of each shape which you manufacture?—As I said just now, that depends upon the nature of the business. The largest amount of weights I should say were 56 lbs. weights; the next would be the smaller weights.

890. Those 56 lbs. weights I think you said are either conical or square?—They are either conical ring weights or square bar weights.

891. What is the average cost of a set of weights of each description?—The 56 lb. weights we sell at 10*l.* a ton stamped and adjusted. As to the smaller weights, they vary from 56 lbs. down to a quarter of a pound, we will say; a set would be from 15*s.* to 18*s.*

892. Supposing you also add all the smaller weights, what would it be?—From 2 ounces down to a quarter of an ounce it would be about 1*s.* more, and the galvanising would be about 8*s.* per cwt. if they were to be galvanised.

893. Are you in the habit of adjusting commercial weights from time to time?—Yes, we do it largely. It is the custom of the commercial houses in London to employ a scale maker to keep their scales and weights in order. Men go round periodically and attend to the adjustment of the weights.

894. Do you know that the inspectors ever undertake to do that themselves in the country?—Yes, they do do it in the country, and it is a cause of great dissatisfaction and complaint amongst the trade. If the Commission remember, I handed in a memorial from Liverpool against the practice.

895. What is generally the condition of those weights before they are adjusted?—It depends very much upon the nature of the trade. In some trades with dry goods the weights are in a very good condition; but in trades such as grocers or white-lead dealers, or any of those trades, where the commodities that they have to weigh are operated upon by the temperature, or the material is adhesive, our men have to be very careful with them to scrape them. Butchers' and cheesemongers' weights also have to be attended to with great care. We generally find that where houses have their weights adjusted by a scale maker they have a desire to have them correct. In fact, as I stated in my last examination, we are responsible for the weights, and if the weights are seized we not only pay the penalty that is imposed upon them, but we supply new weights gratuitously.

896. Do you generally find that those weights have been fairly used?—Always fairly used. We find indeed that houses generally are scrupulously particular about their weights. They feel that their reputation depends upon it, and they are desirous to have their weights accurate.

897. Have you never found any instance of weights being fraudulently tampered with?—I cannot go so far as that. We have found instances, but they have been very few. The instances are those where they do not employ scale makers, because if they were to tamper with the weight, our men going round would find immediately that it was wrong, and would condemn the weight, and they would place a mark upon the wrong weight immediately and say, "This weight "is incorrect, we shall send for it to be adjusted." Or they take it away at the same time if they can do

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so. But those who tamper with their weights would not come to a scale maker to have them attended to.

898. Then it was by accident that those weights came into your care, the person forgot or was not aware that they had been tampered with by some one else?—In a large number of people you will find as a rule they are generally honest, but there are some exceptions, and those are rare exceptions.

899. Do those people who are consciously dishonest come to you at any time to have their weights adjusted? —We have had people who have tampered with their weights, but it has not been a frequent occurrence.

900. Do any of those cases come under your notice? —Our men find them. It would occur in this way. Our men in their periodical visits would find that the weight or the weights were frequently wrong, and they would ask themselves the question, "How "can this be unless these weights have been tam- "pered with?" But those instances are so rare that I should not like to say that it is part of a system.

901. (*The Warden of the Standards.*) As a rule, I suppose the tradespeople who contract with you to have their weights kept in order are generally of the higher class?—No, not so. Small shopkeepers do it. In fact small shopkeepers sometimes manifest as much desire or more desire about their weights than the higher class, for this reason, that they feel that if a charge were to be brought against them it would ruin them entirely, whereas a man of respectability would say "My character is not to be impeached by such a "circumstance as this;" but you may impeach the character of a small shopkeeper, so that many of them are desirous of acting honestly, and they also manifest a greater desire to have their weights correct. We have customers who pay us as small a sum as 10*s.* a year to keep their weights in order.

902. Have you many of the smaller tradespeople in the poorer neighbourhoods who contract with you?— No, we have very few in the poorer neighbourhoods. They either do not have their weights adjusted, or they employ some one in the neighbourhood. There are people who go about with the inspectors to adjust the weights and measures in the poorer districts of London, and it is said that in some instances the inspectors have derived a profit from the adjustment. I should be very sorry to make a wild accusation of that kind, because I do not know it of my own knowledge, but I have heard it mentioned. There are, I believe, other persons who will speak positively upon that point.

903. (*Chairman.*) What is the usual cost of adjustment in ordinary cases?—The adjustment of a set of weights, 56 lbs. down to a quarter of a pound, would not be above 5*s.* at the outside, it would be much less perhaps.

904. As to the errors of these weights, can you tell us the greatest amount of error that you have found? —In fraudulent weights we have found hollow weights 7 lbs. light in 56 lbs.

905. But those are rare, I presume?—It is no uncommon circumstance to have hollow weights in the case of people who intend to defraud. We have not often found that with respectable people, but with the class who intend to defraud it is very frequent to have dishonest weights and dishonest scales. I will take for instance those men who sell cherries about the streets. Scarcely any of their balances or weights are correct.

906. Where do they get those hollow weights from?—They get them from dishonest people who make them, such as our men whom we have discharged perhaps for misconduct. They start as small masters, and it is they who supply people with dishonest weights and dishonest scales. No man would think of coming to a respectable house to ask for a dishonest weight or a dishonest measure, because he would make sure that he would not get it. Some years ago, when the Australian gold was first discovered, we had an order from a merchant's house to send out 100 sets of troy weights made one ounce heavy. That was for the purpose of buying the gold dust from the poor miners and getting 13 ounces for 12; but we wrote to the house and said that it could not be done, that no respectable house could make dishonest weights, and the order was not sent to us.

907. Can you say what would be the maximum error arising from fair wear and tear in a reasonable period without adjustment?—That depends upon the nature of the trade, and also upon the amount of trade done. Some persons are using their weights 50 or 100 times a day; others may be only using them occasionally.

908. I presume that the persons who have constantly to sell small quantities use their weights oftenest?— Yes, they use them very frequently.

909. And those who sell goods in large quantities have only to weigh occasionally?—That is scarcely so. Some houses are weighing all day long; they keep men to do nothing else but weigh. Take a salesman in Newgate market, for instance; he has a man constantly at the scale, who never moves from the scale, and he is there weighing, and he takes the weight of everything the firm sells. It depends entirely upon the nature of the trade and the amount of business that they do.

910. As you cannot give any definite answer to the general question as to what would be the maximum error arising from wear and tear in a reasonable period, can you tell us as to particular trades what in each case it would be?—It would hardly be fair to mention single instances as a rule. We have known 56 lbs. weights to be half a pound light.

911. After what interval would that be?—It is impossible to tax one's memory entirely upon that. We have known weights to be very light through accident, such as losing the ring. The ring of the weight may come out, or a portion of the lead by which it is adjusted may drop out. Those are the instances of which I speak; but we have never known an instance of a respectable house making their weights purposely light.

912. What is the maximum error which arose from fair wear and tear without fraud, but perhaps from some neglect in having them adjusted?—They may vary not more than a quarter of a pound in 56 lbs. as the maximum error in 12 months.

913. Have you known instances of tradesmen suffering or alleging that they suffer from the negligence of their scale maker; I mean their weights having been called in question on account of that?—Whenever people are detected in an act of wrong-doing they generally like to lay the fault on some one else, and they generally quote the scale maker as the excuse for their own wrong-doing. But my impression is that where they employ a respectable scale maker, and where the scale maker is liable for the fines and to supply the weights if they are seized, there is not much liability of their being incorrect. With regard to the balances, as I stated, I think, on the last occasion, we will not answer for them; we expect the tradesmen to attend to them themselves.

914. As to weights of other denominations than the official standards, such as $3\frac{1}{2}$ lbs. weights, do you sell any such weights?—Never. We believe that they are only used for dishonest purposes. The law has clearly defined, both in this country and in all countries, a wide distinction between weights, so that one shall not be confounded with others. We have the 56 lbs., we have the 28 lbs., the 14 lbs., the 7 lbs., the 4 lbs., and the 2 lbs.; but if we were also to have the $3\frac{1}{2}$ lbs. weight, it would be used for the 4 lbs. weight very generally. There cannot be in my mind any necessity for it. If people wish to make up a $3\frac{1}{2}$ lbs. weight, it is easily done by using the 2 lbs., the 1 lb., and the $\frac{1}{2}$ lb.

915. Do you sell many troy weights?—We sell troy weights, but their sale is very small in comparison to the avoirdupois weights.

916. Are any of those troy weights stamped by the inspectors before you sell them?—Very few; and till recently I may say they were never stamped. But there have been summonses taken out against silver-

smiths and pawnbrokers, and those using troy weights, and now a few are being stamped, but a very few.

917. Are any of them brass weights?—Almost all troy weights are brass weights.

918. Then I suppose they are stamped at Founders' Hall?—They are stamped if they require it, but the Founders' Hall stamp for troy weights has not been in much use; such weights have not been frequently stamped at Founders' Hall, but they do stamp there.

919. Do you contract with tradesmen, particularly with silversmiths and chemists, to adjust their troy weights periodically?—No. Troy weights are not used much, excepting for compounding by chemists; they buy and sell by avoirdupois weight. Silversmiths use the troy weights.

920. And do you ever contract with silversmiths to adjust their troy weights?—Yes, we do.

921. Do you sell many unstamped troy weights for private use?—The troy weights are almost all unstamped.

922. Do you think that all weights should be required to be stamped before being sold, as a test of their fitness and accuracy?—I think that a weight is not a weight, if I may use the term, until it is stamped. The term weight is so general in use,—we apply it to other things; we say clock weights and sash weights, and in fact any casting is called a weight,—but what we believe to be the true definition of the word "weight," is that which represents a certain number of grains, and that must be accurate, and it is made accurate by adjusting and stamping, and it is not a weight until it is adjusted.

923. Then you think that troy weights should be stamped?—I think that every weight should be stamped for buying and selling.

924. Do you find in troy weights much inaccuracy when they come to you for adjustment?—No; we do not find much inaccuracy, they are generally very correct.

925. You do not often find the same inaccuracy as you find in avoirdupois weights?—No; they are taken greater care of.

926. Have you not come across any instances of fraud in troy weights here?—None. I do not believe there are any cases of fraud, excepting the instance that I have mentioned, where the party wanted to buy the troy weights heavier for the purpose of defrauding the poor miners.

927. But you have not heard of any in England?—No, not in England.

928. (*The Warden of the Standards.*) Do you think it a good regulation that they have in France of requiring that every commercial weight sold shall be stamped both with the name of the maker and with the stamp of the inspector?—I think that a very good regulation. The name of the maker is a warrantry that it comes from a respectable house and that the metal is genuine, and the stamp of the inspector is a stamp of accuracy.

929. You think there would be no practical difficulty whatever in the law requiring that every weight sold should be so stamped?—I see none whatever. It would be tending to make the system more perfect and the weights more reliable. It is like, if I may use the simile, buying a watch. A watch bearing the name of a good maker is more respected than a watch that bears no maker's name.

930. Does not the Founders' Company require that all brass weights shall be stamped by them?—They do require it, but they have no power to put that law into force. I speak advisedly, because I am a member of the Founders' Company myself, and a warden of the company at the present time. We are sorry to find that our business is falling off; our receipts are gradually diminishing. 20 years ago our income was very much larger from stamping weights than it is now, and it seems to me that our occupation is passing away, through our not being able to enforce our rights. We believe that we have the right; the Act of Parliament authorizes us to stamp weights, and that those weights shall pass unchallenged throughout the United Kingdom, but our authority is frequently disputed.

931. Your rights are founded, are they not, on a Royal Charter, and upon a clause in the Weights and Measures Acts, reserving your rights?—Yes, but our rights are frequently disputed in the country. The Charter says that a weight once stamped at the Founders' Hall shall pass as legitimate throughout the country, but we have frequent instances of inspectors, even in Middlesex and the counties around, saying, "You must have that weight stamped in our district or we shall seize it."

932. (*Chairman.*) Have they legal power for that?—No, they have no legal power.

933. I think you said the other day that an inspector can do pretty nearly what he likes?—I am afraid he can.

934. (*The Warden of the Standards.*) Has there ever been a judicial decision upon that point?—No, there has never been a judicial opinion taken. The Founders' Company have several times thought of asserting their right, but the amount which they receive from it is so trivial that it is hardly worth while getting involved in a heavy lawsuit where the inspectors dispute our authority.

935. The right of stamping brass weights was conferred upon the Founders' Company at a period when there was no other recognized authority for stamping weights, was it not?—That was so.

936. Do not you think that now there are recognised public officers for stamping weights and measures it would be very expedient as regards the public that the right of the Founders' Company should cease?—The original design of those regulations in connection with companies was for making respectable every branch of trade. There were the sadlers who had certain rights, and the goldsmiths had rights which they retain still, such as the stamping of silver; and various companies, which I need not mention, had special privileges. I believe that the Goldsmiths' Company and the Founders' Company are the only two who retain the rights of stamping and charging fees thereupon. Of course if that law is abrogated it would be a case of compensation, I imagine; because the Founders' Company derive a sufficient sum from it to pay some of their servants. The sum in itself is insignificant as an amount, but it is sufficient to pay some of their servants.

937. But supposing that it was thought just to give compensation to the Founders' Company for depriving them of their rights, do not you think that it would be a great public advantage having only one system of stamping weights by the inspectors instead of two as a present?—I do not think it would be any very great advantage for London beyond that it would reduce the fees. At the present time when we make a brass weight in London we have first to take it to the Founders' Company to be stamped, for which we pay a fee, and we then have to take it to the Guildhall and pay another fee. We have a double verification in that case, but that double verification is unnecessary, it causes an increase of expense and an increase of time. I see no reason why the right should not be abolished if compensation were given, and I think it would be an advantage. But as a member of the Founders' Company I must say that they, like all other companies in London, hold very tenaciously to their rights and privileges, and they boast of having had their charter for more than 500 years. Indeed we celebrated our 500th anniversary about two years ago.

938. The power by which they stamp weights was given to them under a charter of James the Second, I think?—I believe it was a charter of James the Second.

939. (*Chairman.*) Do you deal in metric weights?—We have made them both for France and Spain.

940. Do you find any demand for them in England for any purposes?—None whatever. We have only sold a few sets, not more than half a dozen sets.

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941. You do not have many inquiries respecting them?—None.

942. Have you known of no instance of metric weights having been used for buying and selling in England?—None.

943. Of what material and form of construction are metric weights generally made?—Those for Spain are made like the French, only round instead of hexagonal, and the same with the measures. Here is a Spanish measure (*pointing to the same*); the only difference between the Spanish measure and the French measure is that the Spanish one has, at the bottom, an iron plate that has to be made of a certain depth, and the French has a wooden band. It is called a dekalitro in Spain, and a dekalitre in France. The only difference is the band at the bottom. The French have also an iron bar across the top to strengthen it. The larger measures, from this size upwards, have always an iron bar to strengthen them. This is a corn measure before me, and the iron bar strengthens it immensely. Here is the next smaller size, the demi-dekalitre, and it has a wooden bottom without the iron at the top.

944. Do you find that it is usual to have halves of the units of decimal weights and measures, and do you make them?—In the case of weights we do, but not measures.

945. It is generally the weights and not the measures that you halve?—Yes.

946. Of what material are your metric weights usually made?—They are mostly plain cast iron and brass. I have here a brass kilogram, composed of a complete cup set; you will find them regulated by the grams. The first is 200 grams; then there are two 100 grams, one 50, one 20, two 10's, one 5, two 2's, and a 1, that is, a cup weight of a kilogram.

947. (*The Warden of the Standards.*) The case weighing 500 grams and the weights contained in it altogether amounting to 500 grams more?—Yes; that is so precisely.

948. (*Chairman.*) The Commission recommend in their second report that the use of metric weights and measures should be legalised in this country, and that a legal regulation to make them conspicuously distinguishable from Imperial weights and measures would be very desirable; can you give us the benefit of your practical experience and your opinion as to the best way in which that recommendation should be carried out; one idea being that metric weights should be imperatively required to be hexagonal, and that no Imperial weights should be allowed to be hexagonal?—I think it would be a very good rule; it would be a clear distinction between the two weights. I have never known instances of English weights being made hexagonal, and if the metric system is introduced I think it would be better to introduce it in its entirety, for as it works well in other countries it would work well here.

949. Do you mean whether it is made compulsory or not?—Whether it is compulsory or permissive. I would introduce the French system because it is so well known in other countries. When I speak of introducing it in its entirety I mean that I would not have any change from the French system; I would not make a round weight the same as they have in Spain, because those round weights would be more liable to be confounded with our weights than the hexagonal ones.

950. Should you make a similar distinction as to measures; as to the litre, for instance, to distinguish it from any English measure?—I think that the distinction is sufficiently wide. Here is a standard litre, and it is square; we have no such measure.

951. You have shown us a dekalitre which is round?—That was a continental measure for dry goods.

952. You would not require the commercial measures to be more distinctly marked?—No; the French measures are sufficiently distinct, we should never confound them with the English.

953. Do you think that it would not be necessary to require that commercial metric weights and measures should be of a distinct shape from the Imperial in order to avoid any fraud or confusion?—If you could make them so it would be better, but I do not see how we could adopt a better system than that which is in use in France.

954. But if we had all commercial weights hexagonal that would distinguish the weights, would it not?—Yes; that is the French system.

955. Then when we come to the litre, that litre is square, would it be desirable that all the commercial litres in England should be square to distinguish them from the imperial measures?—Commercial measures could not be made so. Here is a standard litre and here is a commercial litre (*producing the same*). It would be too expensive to make the latter square, and there would be no utility in it to my mind, the word litre being stamped in large characters upon it, and the measure being made of a different pattern to our English measures. Our English measures are differently formed, and they have not so wide a band; there is a clear difference between them. The English measures have a narrow band of iron; the French have a wide band of iron at the top and a wooden band at the bottom. That is a sufficient distinction, and they are very particular in having the capacity branded on the measure. In England they are not so particular; they have the measure stamped, but not the denomination branded on it.

956. (*The Warden of the Standards.*) Are the English measures generally made with an iron rim?—Generally with an iron rim.

957. Are they ever made with a brass rim?—Sometimes; but brass is very much more expensive for measures; it would more than double the price of those measures to have them made of brass. Some two or three years ago we had to make a set of measures with brass, and I think the price was doubled; instead of being 3*l.* it was 6*l.* from a bushel down.

958. It would therefore not be an expedient regulation to require that all metric measures should be made with brass rims?—It would be a very inexpedient thing on account of its being more expensive, and secondly, it is not so durable. The tenacity of iron is greater than the tenacity of brass. Brass is more liable to wear and to tear when it is a thin sheet of brass. But to my mind if the metric system were to be introduced, there is sufficient distinction between the French measures and the English measures, especially as the French have them legibly branded. The great fault in our system is not having our measures legibly branded. We were just discussing what imperial measure this was. I know that it is half a gallon, but the world ought to be able to read outside that it is half a gallon, and not to be in doubt. In the French measure it is perfectly clear.

959. There would be no practical difficulty then in requiring by law that every wooden measure should have its capacity legibly marked upon it?—I think it is most important to prevent fraud, that those who run may read, that a child should know.

960. And that it should also be marked with the name of the maker as well as stamped?—Yes; you will find that French measures all have the initials of the maker, it is a guarantee of respectability and honesty. All that you require is an honest measure.

961. (*Chairman.*) As to the series of decimal multiples and subdivisions of metric weights that may be legalized as standards and used for commercial purposes: you are probably aware that in the French metric system the series is only 1, 2, and 5; a duplicate 1 being also occasionally used: do you think this series sufficient for practical purposes?—Quite so, it answers exceedingly well in France and other portions of the continent, and I think we had better not change that which is an international system. I would go so far as to say that even if I had objections, I would adopt it because it appears to be almost universal, the same as I would adopt the English system if it were universal.

962. The number of weights in a series necessarily affects the question of the cost of a set of metric

weights; can you give the Commission any information as to their cost?—It affects it but to a very trifling extent; in making up this cup kilogram before me, if there were two weights less or more, the difference of cost would be very trivial, when we are making them in quantities; there is only the same weight of metal and the cost of the workmanship for making two more weights or two less in casting and turning would be scarcely appreciable.

963. Have you considered the question of the expediency and the cost of converting Imperial weights into metric weights?—I should say that it would be impossible to convert them, you could make them new cheaper than you could convert them, the two systems are so distinct.

964. (*The Warden of the Standards.*) Could those cup weights be made of an hexagonal form?—No, not well, we could not put them into the lathe and work them, hexagonals and squares are very awkward for lathe work; it would increase the expense enormously and I do not think it would be any advantage. To my mind they are sufficiently distinct. I should insist on their having a cap and then that causes a difference between them and the English avoirdupois weight at once, most English avoirdupois weights are made without a covering cap.

965. That distinction could be enforced by law, could it not?—The distinction that each set should have a covered cap with the weight stamped distinctly upon it could be enforced. This weight is one kilogram, and no one could mistake it, but I would have every weight distinctly branded. It is not so with our English system, many of our weights have no brand at all on them. This iron weight which I have in my hand has the brand 2 lbs. but the rule is not to brand them.

966. Are iron weights painted?—Sometimes; but generally they are in large quantities, and they are sold in the rough as they come from the casting.

967. It is not the usual practice to paint them?—No, it is not the usual practice to paint them.

968. Do you think that an objectionable practice?—No, I do not think it objectional, on the contrary, I think it is an advantage, it prevents them corroding; we do not paint them on account of the expense, but iron painted does not corrode so rapidly as when not painted.

969. (*Chairman.*) Do you supply local standard measures of length for the use of inspectors?—We do.

970. Do you supply standard yards?—We do.

971. These local standard yards consist, do they not, of a metallic bed and rod, and are generally made of brass or of gun metal?—They are generally made of gun metal.

972. Are they ever made of brass?—The bed is sometimes made of brass, but the rod always of gun metal, gun metal is less liable to bend.

973. What is the relative cost of standard yards according to the metals?—A standard yard with a bed of the best metal would cost from 4*l.* to 6*l.*, and the common description of brass bed, with a lined wooden rule, could be supplied for about 50*s.* complete, case and all.

974. Have you supplied any iron sub-standard yards for Ireland?—Not for Ireland. We have supplied a few sub-standard yards of iron, chiefly for linendrapers' counters, but the amount sold is very few. I should say that the whole that we have supplied are not more than 20 or 30 in a year.

975. Do you also adjust local standard yards before re-verification?—We have to adjust every weight and measure before re-verification.

976. In what condition do you find the yards before adjustment?—Generally tolerably correct; occasionally we find that they have had a fall and become shortened or bent.

977. What sort of error has that produced in the yard?—It does not produce much error, because the yard that we supply is a compound yard, and they have the means of detecting the error more readily with the yard and measures of length than any other measures. The brass rod being the guage, if the bed were to be altered the brass rod would detect it in a moment, it would not fit in, so that measures of length are more accurate than measures of capacity.

978. You are probably aware that it is proposed to establish standards of subdivisions of the standard yard and of the foot and inch, do you consider that practically such subdivisions could be marked upon the existing standards?—Yes, I think so, and it would be a great benefit to many trades to have the subdivisions accurately marked on the existing standards.

979. Have you considered whether it would be desirable that such sub-standard yards marked with subdivisions should be constructed of iron?—I think no standard should be constructed of iron, it is not a good material, it is too liable to corrosion, and the cost of having one made of superior metal is but very trifling.

980. Do you deal largely in commercial measures of length?—We deal in commercial measures of length.

981. Do you construct them?—We construct them. We have one man who makes them; it is not a very large trade.

982. Of what material are they generally made?—They are made of lance wood or box wood.

983. Have you found that these measures and their subdivisions are generally accurate, no standard measure other than the yard having been as yet established?—We have no means of testing their subdivisions; we have to rely upon the customary length.

984. Are the yards themselves accurate?—The yards themselves are generally accurate, but we have no means of testing subdivisions with any standard.

985. Do you deal in metric measures of length?—We have made a few, but the metric weights and measures have never been introduced into this country, and they never will, in my opinion, so long as it is only a permissive measure.

986. Do you make them only for foreign use?—Only for foreign use.

987. Can you suggest any practical mode of establishing a conspicuous distinction between imperial and metric measures of length for commercial purposes?—The metre is much longer than the yard, and that alone would be a sufficient distinction.

988. Could you not establish any difference in shape or construction, to avoid any fraud for instance?—There could be no fraud practised in substituting the metre for the yard, because the metre is longer. The yard might be substituted for the metre, but not the metre for the yard.

989. You do not see any particular way of making them distinct in appearance besides the obvious distinction that there must be in length?—I think it would be a very good plan to have the measure marked on one side "metre" and on the other "yard" to show the difference; but I see no fear of the metre ever being confounded with the yard, because it would be against the interest of persons to do so, any more than that the kilogram would ever be substituted for the 2 lbs. weight, it being heavier.

990. Have you supplied many local standards of capacity for the use of inspectors?—Yes; that is our trade, to supply measures of capacity.

991. Have you supplied sub-standards of capacity either for Ireland or Great Britain?—Not for Great Britain, but for Ireland, we have supplied sub-standards in great numbers.

992. Are such sub-standards in use by inspectors without being verified by the department here?—The sub-standards are not verified here.

993. Of what material are those standards and sub-standards made?—The measures of capacity are made of wood, and the liquid measures are made of copper generally.

994. Are they readjusted also from time to time?—We have never had to readjust a set of sub-standard measures.

995. But have you had to readjust standards of

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capacity?—Yes; that is our trade; we have frequently to do it. We bring them here to the Board of Trade to have them reverified.

996. What is the cost of a set of such standards and sub-standards?—We have supplied sub-standards complete, scales, weights, and measures, as low as 10*l.* a set, but we have supplied others as high as 25*l.* a set; we can make them almost to any quality.

997. What is the material which would make that difference in price?—Some sub-standard weights are made of brass instead of iron, and that increases the price.

998. Do you deal largely in commercial measures of capacity, both for liquids and dry commodities?—Yes, we supply corn merchants with wooden bushel measures, and we supply distillers with copper liquid measures, and various classes who use both descriptions of measures.

999. Do you supply any measures of other denominations than the official standards, or local and customary measures?—None.

1000. When you spoke of the cost of standards, were you speaking of the cost of commercial measures just now in the answer which you gave to my question, or of standards?—We were speaking of standards and sub-standards.

1001. What is the cost of a set of commercial measures of either liquid or dry goods?—That depends on the number of measures that they require; for instance, to corn merchants we supply a great number of wooden drum measures, as they are called, bushel measures for measuring corn in bulk from the ship. They require no other sizes; the general run of wooden measures are made of the bushel size.

1002. What is the cost of them?—They vary in cost; some are as low as 5*s.*, and they go up to 2*l.* It is an object to make the bushel corn measures as light as possible and as strong as possible, and for that reason we put the smallest amount of wood and the smallest amount of iron compatible with strength in them; they are called light drum bushel measures.

1003. Do you deal in metric measures of capacity?—We have supplied them both to France and Spain.

1004. You are aware that under the metric system in France all metric measures of capacity for liquids must be made of a specified metal, the composition of which is tested before verification and stamping, and of a specified form. Do you see any objection to a similar regulation being established in this country, so as to make a marked distinction between imperial and metric measures of capacity for liquids?—I should see no objection to the same system being introduced here as in France, if it were compulsory, but not if it were permissive, because it would be giving so much trouble for only a very small amount of business.

1005. You would attach greater importance to having a broad distinction between the measures?—Yes, and we should take care that the metal was pure; we should not supply bad metal.

1006. Can you give us any information as to the cost of metric measures of capacity for liquids?—They would range very much the same as the English measures now in use.

1007. Have you any further observations to make to the Commission upon the subject of this enquiry?—When I was here on the last occasion I spoke about the fines sometimes being very exactive where the inspectors have a portion of the fines. I have before me now a return which was presented to the House of Commons in 1858, where it speaks of the Tower division. It was a return for the county of Middlesex. Westminster is mentioned, and different districts, but I call particular attention to the Tower division, where the fines in one year amounted to 379*l.*, and where the inspector had a moiety of the penalties amounting to 189*l.* 10*s.*, that was in addition to his having a salary I believe of 80*l.* a year. I venture to express an opinion that it was wrong for an inspector to have a mercenary interest in such fines, especially where a man is only worth a salary of 80*l.*, and his income is thus increased by 189*l.* a year.

1008. You think that it made it his interest to get as many convictions as he could, and that it would be a temptation to him to procure unjust convictions?—Yes, that was my motive for calling attention to it. There are other returns where the penalties are very much less it is true.

1009. Do you think that such arose not from the slackness of the inspector but from his greater fairness?—No, I think it probable that the first named inspector had mis-informed the magistrates as to the circumstances. I could give in returns from six or eight districts where the penalties are very small in comparison with those of the Tower district. The officer of the Tower district was looked upon as one who would draw the cord rather tight, and this return was moved for for the express purpose of finding out what his fees were arising from his inspection.

1010. What streets does the Tower division include: it includes a large number of small streets, does it not?—Yes, the return is headed, "Return of the "number of persons convicted of using false weights "and measures in the Tower division of the county "of Middlesex, for the year ending the 31st of "December 1857." It is the Whitechapel district, I believe, that amount was the average of his income for several years.

1011. Was the Lambeth inspector paid by fees?—This is a return only for those districts where the inspectors had a moiety of the fees, and I should conclude that he had not in Lambeth.

1012. In Lambeth there is a suspicion, is there not, that they have a large number of fraudulent weights?—Yes, there have been a large number of fraudulent weights, and by not finding Lambeth in this list I conclude that the inspector has not a portion of the fees, and that he is paid by salary. That being the course which I would recommend; it is adopted in the city, where it works admirably.

The witness withdrew.

Mr. Samuel Robinson Short examined.

Mr. Samuel Robinson Short.

1013. (*Chairman.*) You are a member of the firm of De Grave, Short, and Fanner?—Yes.

1014. Do you supply local standard weights for the use of inspectors of weights and measures, and do you construct them?—Yes.

1015. Of what metal are local imperial standard weights generally composed?—Either of brass or of gun metal.

1016. What is the average cost of a set of local standard avoirdupois weights of each of those two descriptions?—From 10*l.* to 40*l.*, and some a still higher price when they are very elaborately finished.

1017. What is the difference in price of the two descriptions of metal?—We make no difference in the price according to the metal, there is so little difference in the cost.

1018. Do you make any sub-standard weights for either Great Britain or Ireland?—Only a few, and those for Ireland.

1019. A suggestion has been made to the Commission that it would be desirable to use galvanised iron weights as subsidiary standards for the local inspectors, what is your opinion of that proposition?—I do not think that it would be a very good thing, for I had a set of such weights the other day to adjust for a commercial man in the country from 28 lbs. down to a $\frac{1}{4}$ lb. They were all in apparent good order; weights of the description before me. I cannot tell how long they had been out, but I should

imagine they might have been in use perhaps two years; I am only judging of that, and I think that the 28 lbs. was three quarters of an ounce light, and the others all in proportion.

1020. This is a very large and unusual amount of error, is it not?—Yes, quite so. Of course an iron weight without being galvanised would not have been so light as that. The opinion which I formed was that the softer metal, the zinc or the tin, or whatever it is upon it, had worn off and caused it to become so light; for the cup, as we term it, of the re-adjustment was all in good order, and had been stamped.

1021. Do you usually re-adjust local standard weights before they are sent here to the Standards office for re-verification?—Yes, we always adjust them very closely upon very fine balances before they come here.

1022. In what sort of condition do you generelly find them?—That depends entirely upon the wear and tear, the number of years that they have been in use, and also the care that has been taken of them.

1023. Do you often find them much knocked about?—Sometimes very much so. There is a fair average I think to be taken with some standards. In the City of London we had a set last summer belonging to what is termed the out-door inspector. I examined them very carefully, and to the best of my recollection the 56 lbs. weight was about 30 grains light, not more, and that had been in use three years. The 1 lb. weight was about three grains light, and all the intermediate ones after the same proportion. Then again the City of London in their in-door office have a set of standard weights and measures re-verified every 12 months, and there they are worked very hard; they do not go out of doors, and I should think they would not be more than 30 grains light in a 56 lb. weight after twelve months' wear. On the other hand, in the case of country inspectors who travel about, where there is a great deal of friction, perhaps the boxes that contain the weights are put in a cart, and being shaken about very much, they wear very fast indeed. I have known some of them that have been as much as five or six drams light in 56 lbs., after five years' wear, and others not so much. But a vast deal depends upon the man who uses them, some men are very careful, and others quite the contrary.

1024. Do you find that those standard weights have been altered or adjusted in the several localities?—Yes, the inspectors alter them.

1025. Do you find that they do it properly or not?—I never myself saw any of them done well yet.

1026. Can you give us an idea of the greatest error that you have found in these local standard avoirdupois weights?—We have found some of them as much as $\frac{3}{4}$ oz. light in 56 lbs., but that is a very solitary instance; we never find more than that. I should say, taking them generally, it would be about 50 grains on the average.

1027. As to imperial commercial weights, are you engaged largely in the sale of commercial weights or weights used for buying and selling?—Yes, we make a very great many commercial weights.

1028. Speaking at present only of the avoirdupois weights, of what material are they composed?—Avoirdupois weights are made principally of brass and iron.

1029. Can you give us any idea of the proportion of the number of weights of each description?—No, I cannot.

1030. I suppose the small weights are principally of brass?—Yes, they are.

1031. Do you make more small ones than large ones?—Yes; if you take an ordinary shopkeeper, he would have perhaps six or eight 1 oz. weights in use to every 1 lb. or larger weight.

1032. Do you suppose that on the whole, taking large and small together, you make about an equal number of each metal?—No; the majority of shopkeepers' weights are made of iron, some few of porcelain, and the small ones of brass.

1033. Therefore you cannot tell the relative number of brass and iron weights?—No, I could not go into that at all.

1034. As to the form of those weights, what is their general shape?—The iron weights are square, ringed, and cylindrical; the brass weights are either made bell-shaped or flat.

1035. You make them also cylindrical?—Yes, I have brought with me some weights of different descriptions to show the different forms, and also some French weights.

1036. The French weights are generally hexagonal are they not?—No, we generally make them square. This is a square weight of three kilograms, marked "3000 grams" (*producing some weights and describing them to the Commission*); the flat brass avoirdupois weights are made in this form, each of these weights differs, and they all have a different local stamp upon them. One has the stamp of the city of London, another the county of Surrey, another the county of Middlesex, another the parish of St. Pancras, another the city of Westminster, and another the parish of St. Mary-le-bone.

1037. (*The Warden of the Standards.*) Those last mentioned are all imperial weights?—Yes; there are two different sorts of metal, the one is of brass and the other of gun metal. It does not make any difference in the price, the cost is the same.

1038. (*Chairman.*) Is gun metal much used?—Yes, it is rather harder and it wears better; a large proportion are made of gun metal for shopkeepers.

1039. Can you tell us the proportional number of each shape?—No, that would be impossible, no person could arrive at a correct conclusion upon that.

1040. What is the average cost of a set of weights of each description for shopkeepers' use?—We charge 4*s.* 6*d.* for a set of stamped brass weights from 1 lb. to a $\frac{1}{4}$ oz. inclusive.

1041. What would be the price of a whole set going up to 56 lbs.?—If you take the larger ones beyond 1 lb. to be of iron the cost would be about 18*s.* 6*d.* the whole set.

1042. Are you in the habit of adjusting commercial weights from time to time?—Yes, a very great many.

1043. Do you contract to keep tradesmens' weights in good order?—I should think we have about a thousand contracts of what I term the best description; that is to say, we do not take any little petty contract, ours are large tradesmen.

1044. What is generally the condition of those weights when you examine them, before they are adjusted?—It depends rather upon the trade. In the case of a cheesemonger or a provision dealer, where there are a great many salt goods, the weights corrode and get very light. In wharves and iron yards and similar places, where the weights are thrown about over paved stones, they get light; but where they are used in a clean dry warehouse, for example, for weighing silk and similar articles, and the weights are carefully used, a 56 lb. weight would not lose a dram in a year, or not more, unless the weights have been very hardly worked. If I was to take an average, I should say about half an ounce in 56 lbs., I mean within the periods of adjustment.

1045. What has been the period usually?—We generally adjust weights for commercial purposes about two, three, and four times a year. It depends upon the nature of the business.

1046. Do you find that the weights have been generally fairly used?—Very fairly in a general way.

1047. Have you ever found any case in which they have been fraudulently tampered with?—It is a very rare thing indeed.

1048. I suppose the class of tradesmen who send them to you do not belong to the class where that would be likely to occur?—The majority of tradesmen are very respectable, and I believe they are anxious to have their weights and measures all correct, and they try to do it in the best manner they can.

1049. But you have occasionally in your experience

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met with cases where they have been fraudulently tampered with?—Yes, occasionally.

1050. Can you give us an idea of the amount of fraudulent error?—There are certain dealers in marine stores and all those sort of people, whose weights are very suspicious. I have heard of a 56 lb. weight being 3 lbs. and 4 lbs. light. They have some contrivance by which they can make it light; they take and cut all the lead out. Then again on the other hand, I have seen weights which have been cast hollow, and have been perfectly filled up with cork, so that a weight representing a 1 lb. weight of this shape before me would not weigh more than 8 oz.; and such a weight has been made for a fraudulent purpose.

1051. In fact it was only half the proper weight?—Yes. If you were to look at the weight you would imagine that it was a correct weight, judging from the external form of it, but the moment you took it up you would be almost alarmed as you lifted it; you would be prepared to lift one pound, and you would be lifting only half a pound; you would not want a balance to ascertain its weight.

1052. I suppose such people do not often send weights to you to adjust?—No.

1053. Have you had any instance of weights which appeared to be fraudulent in those which have come befose you to adjust?—No, unless it is by mere accident.

1054. What is the usual cost of adjustment?—If we cut out the lead and replace it with new, and send it to the office to be stamped, for a 2 lb. weight we should charge 6*d*. If we take a set of small ones, they would be rather less, and the larger ones a higher price.

1055. As to the errors of these weights, can you tell us the greatest proportion of error that you have ever found in adjustment?—We seldom find a 56 lb. weight more that 2 ozs. under.

1056. Do you find more error in proportion in the large than in the small weights?—No, I think it is about the same proportion in the several weights.

1057. Can you say what would be the maximum proportion of error arising from fair wear and tear in a reasonable period without adjustment, take a 56 lb. weight for example?—I never reduced it to figures in that sort of way. If you take it upon the average you may take a number of weights in different trades, and you will never find them more than $\frac{3}{4}$ oz. light in a 56 lb. weight on the average.

1058. What sort of period would it take to produce that error?—Say six months.

1059. How long are they usually without being adjusted?—When we contract to adjust them twice a year, we do them so, and some people's weights we adjust every month. For instance, with Besley and Company, wharfingers in Thames Street, on the first Monday in the month our men go down, and are employed three days at their wharves. We have several other large houses of business, and their weights are adjusted on the same plan, once a month, others once in two months, and others once in three months. That is where they are very careful, and very anxious to do that which is right.

1060. Have you known instances of tradesmen suffering or alleging that they suffer from negligence on the part of scale makers?—That is a very rare thing, if they employ respectable people that do their work properly. I can only say that for the last 20 years we never had a case of anything of the kind amongst all our customers but once, and that was only from accident.

1061. As to weights of other denominations than the official standards, for instance $3\frac{1}{2}$ lb. weights, do you sell any weights of that kind, or have you any demand for them?—We never make $3\frac{1}{2}$ lb. weights.

1062. Or any intermediate weights of that kind?—None.

1063. Have you ever had any demand for them?—We have been asked for them at times from the country, but the London inspectors do not allow them in use.

1064. And you have never made them even for the country?—No.

1065. (*The Warden of the Standards*). You supply weights very largely all over the country?—Yes, very largely.

1066. You have heard I suppose of $3\frac{1}{2}$ lb. weights being made?—There were a great many of them used at one time to be made to weigh a quartern of flour, $3\frac{1}{2}$ lbs. being a quarter peck of flour; but after the passing of the Act in 1826, all those weights were abolished, when the imperial standard came forward and they were not allowed to be used; and if the inspectors did their duty they would not be allowed to be used now.

1067. Are you aware that in some parts of the country the inspectors do stamp $3\frac{1}{2}$ lb. weights?—I cannot say that I am aware of it; I have heard of such things, but I do not know it of my own knowledge.

1068. (*Chairman.*) Do you sell many troy weights?—Yes, a very great many.

1069. Are any of these troy weights stamped by the inspectors before being sold?—All the troy weights that are stamped are those from 12 ozs. downwards, because they have no standards for anything else.

1070. Are they stamped by the inspectors?—In some instances they are; not by all inspectors, for they are not all provided with them; there are only a few provided with them. I believe the inspectors of the county of Middlesex have them from 12 ozs. down, but the Surrey inspectors have not got troy weights. The inspector of the A. E. Division in the county of Surrey has a set of decimal troy weights from 100 ozs. down.

1071. In what district is the A. E. Division of Surrey?—In the parish of Newington, adjoining Lambeth.

1072. Brass weights are stamped at Founders' Hall, are they not?—The Founders profess to have a charter to stamp all brass weights throughout the United Kingdom, and all brass weights that are stamped at Guildhall are first stamped by the Founders' Company, or else they will not stamp them at the Guildhall. The 1 lb. weight which you have before you has the Founders' mark and the Guildhall mark on it also; there is a double stamp, and it has to pay double fees.

1073. Do you contract with tradesmen, particularly with silversmiths, chemists, &c., for periodically adjusting their troy weights?—We never contract to adjust troy weights; we adjust them when they send them to us, that is all; but there is not a sufficient number of them used among chemists. Besides chemists use them only in compounding their medicines.

1074. Do you find silversmiths' weights generally weigh true when they come to be adjusted?—Yes, it is such a careful thing weighing silver and gold, and it is so necessary that they should be correct, that if there is anything wrong or if there is any dispute they immediately send off to the scale maker to have them adjusted. We contract with a number of refiners and silversmiths to do that sort of thing, but not chemists. A chemist buys his drugs and sells his drugs by avoirdupois weight; he only uses troy weight for compounding.

1075. Do you sell many unstamped weights for private use or otherwise?—When we send weights into the country, avoirdupois and troy, we sell a great many troy weights unstamped, because there is no means of stamping them.

1076. Do you think that all weights ought to be required to be stamped before being sold, as a test of their fitness and accuracy?—I think so, but there is a jealousy about stamping weights in the country. I went down to Chelmsford one day upon some business with the chief constable relating to standard weights and measures, and I saw the chief inspector there, and he said to me, rather in a melancholy tone, "I "say, do not send any stamped weights down in this

"neighbourhood." I said "Why?" He said, "Be-
"cause you spoil our fees." He gets a fee for stamp-
ing them, and he knew very well that if I were to send out a weight into the county of Essex, or any other place, with a stamp upon it, they dare not refuse it; they are jealous of those marks; they want to have their own mark upon them, and therefore I always say to any man who buys weights of us, "I
"will send you some blank weights, because it is
"better for you to get the local stamp upon them;
"you can trust the inspector to get them stamped."
I recommend that because it is perhaps the best way if there is a jealous feeling existing. If an inspector comes into a shopkeeper's shop and examines the weights and sees a stamped weight, he may say "I
"do not think this weight is correct," and that has been said.

1077. Has that been the case where he has derived a fee for each conviction?—I think so.

1078. You think he would not do it otherwise?—No, and when they come and see their own stamp upon them, they would say, "This is all right."

1079. Do you think that they would pass a bad weight because it has their own stamp upon it?—Yes, that has been done.

1080. And there would be no check upon that?—No.

1081. Do you deal in metric weights?—We make a few at times, but there is no demand for them.

1082. Have you no demand from the continent for them?—Only occasionally.

1083. Do you know of any instances of metric weights being used for buying and selling?—I cannot say that I do.

1084. Of what material and form of construction are they generally made?—We generally make the smaller ones flat. I have here a set of weights from one gram to 1,000 grams (*producing the same*). These are round and flat with a raised edge.

1085. French metric weights are hexagonal, are they not?—Yes, but it is more convenient to make the round weights, they are cheaper than the hexagonal.

1086. You know that the Commission recommended in their second report that the use of metric weights and measures should be legalised in this country, and that a legal regulation to make them conspicuously distinguishable from imperial weights and measures would be very desirable. Can you give us the benefit of your practical experience, and your opinion how this can best be carried out; would it be desirable for instance to require imperatively that the metric weight should be hexagonal, and to forbid the imperial weight to be hexagonal?—I think that if you are determined to make the adoption of the system permissive, it would be better to have all the larger ones hexagonal, and all the smaller ones I should recommend to be cylindrical.

1087. In the case of those flat brass weights before you, a metric weight of that shape might be confused by a careless person with an imperial weight?—But they are so distinctly marked that you cannot misunderstand them; if you look at them you will see that that is so, if people would but look at them they could not make a mistake.

1088. As to the series of decimal multiples and sub-divisions of metric weights that may be legalised as standards, and used for commercial purposes, you are probably aware that in the French metric system the series is only 1, 2, and 5, a duplicate 1 being also occasionally used, do you think this series sufficient for practical purposes?—No, I do not; I always objected to the French series; the series that I adopt is 1, 2, 3, and 5, I always recommend that invariably. I have a series from 1 gram to 5 grams, then from 10 grams to 50, then from 100 grams to 500, and so on. I find that the series of 1, 2, 3, and 5 is the most convenient for all commercial purposes.

1089. The number of weights in a series necessarily affects the question of the cost of a set of metric weights, does it not?—Yes, but you cannot well have a less number.

1090. Can you give the Commission any information as to the cost?—I can tell you what we charge for this set of brass flat metric weights; we charge 15*s.* for a set in an ordinary way, and they are very nicely adjusted. I beg to observe, with respect to the price of those weights, that if they were wanted in large quantities and for commercial purposes we should be able to make them cheaper; but as they are so seldom wanted, we might as well make them decently and get a fair price for them, because there is a very great difference between making one set and making a hundred.

1091. Have you considered the question of the expediency and the cost of converting imperial weights into metric weights?—It could not be done; they do not bear any resemblance, unless it is the largest weight, the 56 lbs.; you might make that into 25 kilos, that I think is the only way in which you could alter it. For instance, take a 2 lb. weight, you could not make a 2 lb. weight into one kilo, because the kilo is too heavy; you could not add 3 oz. more to the English weight.

1092. Have you any statement that you would wish to make as to the construction of weights?—I did not come prepared to make any particular statement, I came intending to answer any question that you might ask me, which perhaps I might be able to do upon almost any part of the subject. If you determine to adopt the metric system as a permissive one, and to make the large weights hexagonal, that would be advisable. The small ones I should make in brass, and instead of flat I should make them cylindrical, both of those shapes would be distinct from the ordinary shapes of imperial weights in use, but it would be an awkward thing to make those small weights in hexagons, we should have to do it all by filing. If we got a brass weight of that description, a cylindrical weight, we could put it in a lathe and turn it very much quicker than we could make a weight by filing, and that would make it come cheaper as we could make it more readily. When we are talking about standard weights and measures, you must understand that I have been a scale maker for 55 years, and that I have been in the house of De Grave and Company for 45 years, and that all that 45 years I have been connected with the manufacturing and adjusting both of standard weights and measures, and invariably for many years I have adjusted with my own hands the weights which pass this office. I and my son generally do them now, I generally do the small ones, because it is not so convenient for me to lift a 56 lb. weight as it may have been 20 or 30 years ago. I was engaged at the old Exchequer in the year 1825, at the commencement of the present system of standards, in the adjustment and verification of weights under Mr. Charsley, who was then superintendent, so that I have had a very long practice in these matters. I believe that our house has made about two-thirds of the imperial standards in existence, and many of them now pass through our hands. About three weeks ago we had as many as 10 or 11 sets passing through this office, and at the present time we have as many now ready to come up for reverification. We generally bring up a batch like that about every four or five weeks. There is one matter to which I should like to call attention. The county of Northampton, for instance, has, I think, as many as seven or eight sets of standards. They occasionally make a selection of a set to be adjusted and verified in London, and then they compare all the others with it. That is a thing which I think ought not to be done. I think the county ought not to be allowed to verify any number of standard weights and measures by one set. Of a set of standard weights belonging to the Brackley division, they send up a 28 lb., a 7 lb., a 4 lb., a 2 lb., and a 1 lb. only; they keep back all the others, and they say that they are correct. The case is the same with other divisions of the county. I wish also to call attention to the Da-

Mr. Samuel Robinson Short.

23 June 1869.

ventry division. They send up the 8 oz., the 2 oz., the 1 oz., the ½ oz., and the ¼ oz., and they leave out the 4 oz., and they say that that is correct. On examining the weights sent up we find the 8 oz. is 5 grains light, the 2 oz. is 2 grains, the 1 oz. is 2 grains, the ½ oz. is 1 grain, and the ¼ oz. is 1 grain light. I should wish to know whether the 4 oz. weight could be correct, or whether they have tried it correctly, or their beam is not sufficiently good. There are the weights that they have sent up (*producing some weights*). It is a very fair specimen of weights that have been in use. We have no opportunity of ascertaining whether the 4 oz. is correct. I wish to say that in their picking those weights out they have hardly the means of correctly trying them. I mean that in respect to their beams they are not sensitive enough, and I apprehend that if that set of weights all had the same amount of wear, one weight would be light in the same proportion as the others. I have now got a weight here, belonging to the division of Wellingborough, in Northamptonshire; it is just as it came up to us, and it is in exceedingly good condition. This weight is probably 100 years old. I bring it as a specimen of duration. This is a weight I believe originally used in the time of George III. In the year 1835 it came up to us, and we filed out the old Exchequer marks and put what we call a new bottom into it by drilling very deeply in and putting heavier metal in, and then fitting it again. This has been in use ever since 1835; it was reverified some four or five years ago, and has been in use ever since, and now it is 12 grains light. You will notice the amount of wear during that time in a populous district, where it has been carried about in a cart. This weight is a very fair specimen, I consider, of the wear and tear of country standards; I do not think you could have a better. It has been carefully used, but it has been subject to a good deal of wear.

1093. (*The Warden of the Standards.*) That is 12 grains in five years?—Yes, or about two grains a year in round numbers.

1094. That is a fair average as regards an inspector's standard weight which is fairly used?—Yes, this shows the necessity of inspectors' weights having to be re-adjusted and verified at least every five years in cities and towns where they make a great deal of use of them. For instance, in Liverpool and Manchester they have got a number of sets, but I should say they never go more than 12 months without adjustment, because we have four or five sets up in one year from them; they have got so many sets, but they all come up as they can spare them, one or two at a time. The city of London have their standards adjusted every year; the county of Surrey every two years. We do not work for the county of Middlesex, but I believe the county of Middlesex have their standards done about the same time. Several others in our connection have them done every two years, but in the very great majority of cases they go the whole five years, and they do not have them done until the extremity of the time that the law allows them.

The witness withdrew.

Adjourned to Wednesday next, at 1.30 p.m.

Wednesday, 30th June 1869.

PRESENT:

LORD COLCHESTER IN THE CHAIR.

LIEUT.-GENERAL E. SABINE, P.R.S.
PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. Edward Ledger.

30 June 1869.

MR. EDWARD LEDGER examined.

1095. (*Chairman.*) Are you inspector of weights and measures for the west district of the city of London?—Yes.

1096. When were you appointed and by whom?—I was appointed by the justices of the city of London in October 1865.

1097. Had you any previous knowledge of the duties of your office?—Not previous to my appointment.

1098. You had to learn them all when you were appointed?—I had an opportunity of being informed concerning them by the other inspector and by a very old assistant in the city connected with the office. He went round with me and I gained all possible knowledge from his experience. He was with me from the time that I entered on my duties until last September, when he died.

1099. What was his office?—He was called assistant to the inspectors of the city of London; he was assistant in both districts.

1100. Do your duties include the custody and care of the local standards and the testing and stamping of commercial weights and measures, as well as to their inspection as to their legality?—Not stamping, we have nothing to do with that. We have the custody of the standards which we use, but not of the standards by which the weights are tested when stamped.

1101. Are the weights brought to you to be tested?—No.

1102. People do not apply to you to keep their weights adjusted?—No.

1103. Do you act under any and what instructions, or what Acts of Parliament do you act under?—There were no special instructions given to me when I was appointed, the Acts of Parliament to which I have since directed my attention are the 5th and 6th of William the 4th chapter 63, the 22nd and 23rd of Victoria chapter 56, and besides those the Bullion Act and the Permissive Metric Act.

1104. You are provided of course with copies of the Acts of Parliament relating to your duties, and your attention has been drawn to the provisions of those Acts?—I obtained them as soon as I was appointed.

1105. Were they pointed out to you by any authority except the assistant?—By my fellow inspector who was in the office two years earlier than I was I endeavoured to make myself acquainted with what duties I had to perform by going to the fountain head of that knowledge, which I thought the Acts of Parliament were.

1106. Have you found that you required no written instructions from the authorities over you?—No written instructions.

1107. Do you execute your duties yourself or have you now any assistant?—My assistant has merely to move the standards about; he never acts as inspector. He enters places in company with me, and we sometimes exercise mutual judgment about what we see, but he never acts beyond assisting me in moving the standards and putting up balances, and so forth.

1108. Is the person who now assists you the successor to the man who was there when you were first appointed?—Yes, he is his son.

1109. And he is the assistant to both the city of London inspectors?—Yes.

1110. Have you found such assistance sufficient?—Yes; the inspectors do not go together, we have different districts. Each of us has the assistant two days in the week, and the other days we are alone.

1111. Are you paid by salary alone or have you any other emolument?—By salary; we do not draw any fee whatever.

1112. What is the annual gross amount?—150*l.*

1113. What disbursements have you to discharge out of this gross amount?—Not any.

1114. In fact that is your net average annual remuneration?—Yes.

1115.—As to false and defective weights, measures, or balances, that are seized and condemned, what becomes of the proceeds, do you profit by them?—No, they are sold and the proceeds paid into the chamber of the city of London.

1116. For how much are they generally sold; are they sold merely for the value of the old metal?—Yes, they are broken up before they are sold. Here is an account of the last sale,—

"Produce of sale of condemned weights and measures to the 31st of December 1865."

	£	*s.*	*d.*
Iron, 30 cwt. 1 qr. at 3*s.* 3*d.* -	4	18	4
Brass and copper, 49 lbs. net -	1	8	7
Pewter, 470 lbs. at 7½*d.* - -	14	13	11
	21	0	0
Expenses of breaking up -	0	9	4
Total - - - -	20	11	6

1117. With respect to your local standards, how many have you in your custody?—We have the avoirdupois from 1 grain to 56 lbs; we have troy from 1 grain to 1 lb; of measures of capacity we have from half a gill to 1 gallon, and we have two yard measures, one bar and one fixed.

1118. Have you any decimal bullion weights?—Not any.

1119. What precautions are taken for the security and preservation of your local standards?—We have them in cases lined with velvet and in wooden boxes, and we put them carefully away.

1120. Where are they kept?—They are kept in the Guildhall yard, in a place appointed for that purpose.

1121. Are they in your custody?—Yes, in the inspectors' custody.

1122. Have you charge of the whole of them?—Yes, we have charge of them altogether; we are under a bond for their safe custody.

1123. How often are they used?—They are taken out of the office four days in the week, unless anything special requires them more frequently, and we carry them in a cart, and they are used according to our judgment when we see weights that we think want testing.

1124. Are the same standards used by the stamper?—No, the stamper is distinct and appointed by a different authority.

1125. Who appoints the stamper?—The corporation of the city of London; we are appointed by the justices of the city of London.

1126. How long have your standards been in use?—They were originally provided about 1845.

1127. How often are they reverified?—I think every three years, as far as my experience goes, and I should think it was the same previously.

1128. Are they sent to this office to be reverified?—Yes, they are sent here to be reverified, according to Act of Parliament which makes it five years, but we do it every three years.

1129. Who gives directions for readjustment and reverification, and who is responsible for their being duly reverified according to law?—The inspectors knowing when it is needful to make them legal that they should be reverified, notify it to the Committee of Aldermen, and they sanction their going to Messrs. De Grave, Short, and Fanner, who have them under their charge and get them reverified here, and return them.

1130. Then the Committee of Aldermen have the direction of that business, although they do not appoint you?—No, we understand that Messrs. De Grave, Short, and Fanner are employed by order of the justices.

1131. Then the Court has the control of the reverification of the standards, but the justices have the the appointment of the inspectors?—The aldermen are justices; they are the same persons, but they do not appoint as aldermen. For instance, we have to go before a committee of the Court of Aldermen every week, but they may call themselves a committee of justices.

1132. Are you appointed by them sitting as justices?—Yes, sitting as justices in quarter-sessions.

1133. Do you not state the cost of reverification for the consideration of the Court of Aldermen?—We have a general order of the Committee of Aldermen that we are to incur no expense without their consent, and therefore if there is any expense to be incurred, we notify it at our weekly attendance and they sanction it.

1134. How long does it take for the adjustment and reverification of the local standards, during which time you are deprived of their use for comparing weights and measures?—They are generally reverified at a period of the year when we have our annual vacation.

1135. How long does it take?—I think they were between three weeks and a month on this last occasion.

1136. How long does your vacation last?—About three weeks and a few days.

1137. Has any public inconvenience consequently arisen, or have you other copies of the standards to use in case your vacation ended before they were readjusted?—No, we have no other standards; it is not for stamping, it is only for inspection that our standards are used.

1138. What balances have you in use?—We have one balance that we use up to 4 ozs.; another from 8 ozs. to 7 lbs.; another from 14 lbs.; and another up to 56 lbs.; and also we have two troy balances.

1139. How often are they adjusted, and by whom?—They are adjusted generally once a year, and more frequently if we find them out of order. They were adjusted last October, and one of them has been adjusted since by Messrs. De Grave, Short, and Fanner.

1140. What other apparatus have you for the discharge of your duties?—Not any but the measures and weights and balances.

1141. Then have you nothing to do with stamping?—Nothing.

1142. What books do you keep?—First of all there is a daily memorandum book which we carry with us and in which we make minutes of anything that may transpire. Here is a book containing copies of those minutes (*producing some books*).

1143. What is the difference between those two books, because they seem to be used for the same purpose, only the one book is differently shaped from the other?—We carry the smaller one in our pocket, and make memorandums in it in pencil. The other, the larger one, is the office daily memorandum book, we might call it. We also have a book which is a register of the summonses, fines, and convictions, and by whom the cases are heard. We can refer to this last book in case we should find anything amiss in the same houses again. (*The witness produced the books and explained them to the Commission.*)

1144. What accounts do you render?—We have no accounts of money. We have reports to make. This is a form of the weekly report which we give in every Saturday (*producing the same*).

1145. Have you no accounts of fines to give in?—We do not touch the fines; they are handed in to the Chamber from the police office.

Mr. Edward Ledger.

30 June 1869.

1146. To whom is this report addressed?—It is addressed to the Committee of Aldermen. I also have another report (*producing the same*) that is given in annually, but that has special reference to licensed victuallers only, for the purpose of seeing if there is any conviction against them when they apply for the renewal of their licence. And this (*producing another report*) is a general report made every year with reference to a very great number of trades.

REPORT of the INSPECTOR of WEIGHTS and MEASURES from January 1st to December 31st, 1868.

	Cautioned for having			Convictions.	First offence.	Second offence.	Third offence.
	Defective weights and measures.	Unstamped weights and measures.	Unjust machines.				
Bakers	5	2	4	2	2	—	—
Butchers	7	7	10	1	1	—	—
Chemists, druggists, and perfumers.	6	7	3	—	—	—	—
Coal dealers and general shopkeepers.	41	14	13	16	16	—	—
Confectioners	5	4	—	1	1	—	—
Corn chandlers and seed dealers.	1	2	1	—	—	—	—
Costermongers	5	—	2	4	4	-	
Distillers and wine merchants.	1	—	—	—	—	—	—
Feather dealers	—	—	—	—	—	—	—
Fishmongers and poulterers	5	3	4	1	1	—	—
Greengrocers and fruiterers	14	5	1	2	1	1	—
Grocers, cheesemongers, and tallow chandlers.	12	7	21	2	2	—	—
Leather warehousemen	2	2	3	—	—	—	—
Licensed victuallers	94	52	—	13	11	2	—
Marine store dealers	3	—	2	—	—	—	—
Metal dealers and silversmiths.	5	16	5	1	1	—	—
Oil and colormen and drysalters.	2	5	2	—	—	—	—
Piece brokers	1	2	—	—	—	—	—
Provision dealers and ham and beef shopkeepers.	9	14	5	1	1	—	—
Refreshment-house keepers	4	8	—	—	—	—	—
Stationers and paper manufacturers.	2	4	1	—	—	—	—
Tobacconists	10	6	—	—	—	—	—
Warehousemen	18	66	9	—	—	—	—
Wharfingers and carriers	—	3	12	2	2	—	—
Total in 1868	252	229	98	46	43	3	—
Total in 1867	285	299	135	89	84	4	1

	£	s.	d.
Amount of fines this year	20	2	6
Ditto for 1867	37	16	0

JOHN FLETCHER JOHNSON,
EDWARD LEDGER,
} Inspectors.

1147. Where is your office situated, and what arrangements do you make for attending there?—Our office is in Guildhall yard. We go there in the morning at 10 o'clock to get our standards, and we return there with our standards somewhere about half-past 2, but we do not stay there, we have no business there; it is not as if we were the stampers.

1148. Have you ever considered whether there is any public advantage or disadvantage in an inspector of weights and measures being allowed or being in the habit of adjusting weights and measures for tradesmen?—Expressing a general opinion, I should say that the inspectors had better have nothing to do with it.

1149. Are you aware that in some places in the country it is the habit of inspectors regularly to do that, and they make it a business?—Yes, I have heard so, and it is prohibited, I believe, in the Act of the 5th and 6th of William the Fourth, which says that the inspector shall not be a scale maker, or employed in selling weights.

1150. But you are aware that in the country the inspectors do not undertake to make or sell them but only to put them in order?—Yes.

1151. Have you anything to do with the comparison of commercial weights?—Only those that are in use.

1152. Can you describe how you compare commercial weights which differ with the standards?—We put up our beam and we are very careful to see that the balance is equal.

1153. Are you speaking of the balance which you bring with you or the balance which you find in the shop?—The balance that we carry with us, and we put the standard in one scale and of course the weight that is in use in the other scale, and if there is a deficiency or an overplus, we counterpoise it with our smaller weights that we carry with us for that purpose. We do not carry a smaller weight than half a dram.

1154. Do you ever weigh by the method of counter poise, that is to say, first counterpoising the standard, and then removing it and substituting in the same pan the weight to be compared?—If the scales were perfect, as we generally take care to have them, we put the Standard into one scale and the weight into the other, and if we find there is a little difference we often change the weights in the pans.

1155. What is your practice as to the allowance of error or draught on such weights?—I may say positively that we make no allowance. If a weight is the least defective, we order it to be readjusted. We may not summon the owner, or seize it, the first time, but if we go again and find that it is light, and that it has not been readjusted, then we seize it, and it remains with the justices to exercise their discretion whether to impose a large fine or a small one, whether there is any fraud or fair wear and tear.

1156. Have you considered the provisions of the law respecting weights, whether they do not require troy weights to be stamped and inspected in the same way as avoirdupois weights?—Yes, and think the law requires them to be stamped.

1157. Do you ever inspect troy weights?—Yes.

1158. We have had evidence from one or two persons who are in the habit of dealing in troy weights that they are not inspected, but you would scarcely agree with that evidence?—I believe that very little inspection goes on in troy weights. I have lately turned my attention to them. When I went into the office I felt I ought to seize them when defective, and there was a case which I was almost induced to proceed upon, but I found that the troy standards had not been reverified so recently as the avoirdupois standards. Since then they have been reverified, and I have inspected the troy weights of a considerable number of silversmiths, pawnbrokers, refiners, and such persons, but there is a difficulty with troy weights.

1159. What is the difficulty?—I find that the divisions in use are 1, 2, 4, 8, 16, and upwards to 256 ozs., what they call cup weights doubled at each amount; we have no Standards for any of these above 12 oz. Therefore I feel that it is useless on my part to tell the people to get them stamped, because there are no standards; they could not get them stamped if they were sent to be stamped. Then in addition to that, the Founders' Hall, as you are aware, claim the privilege of stamping brass weights. They have standards of that series up to 256 ozs., and when I have endeavoured to enforce what I thought was a useful provision I have said "If you get them "stamped at Founders' Hall perhaps you will have "no complaint from me."

1160. (*The Warden of the Standards.*) Practically then you recognise the stamps at Founders' Hall as conferring legal validity upon those weights and measures?—Yes, they claim it.

1161. And you allow it?—In such a case I thought I could do nothing more, and that I was securing their examination and testing by some authority.

1162. You are not aware whether that point has

ever been brought for judicial decision?—No; they claim it, and I have a circular of theirs in which they quote their charter. They had the standards even previous, I believe, to the city of London, or as long. In the office daily memorandum book I could refer to several instances of troy weights inspected and their deficiencies recorded. I have had no instance lately of troy weights being deficient, but I am quite certain, through the examination that I have given to the troy weights in the city of London, that they are now in a better condition than they were three or four years ago. When I speak of troy weights, I do not mean bullion weights.

1163. You are aware, I presume, that the series of troy weights up to 256 ozs. was the legal series up to 1825 when the present system was established?—The others were then also, I believe, in use. I have always understood the legal series to be of 1, 2, 3, 6, and 12 ounces. We have that series at Guildhall.

1164. Do you not know that the only legal series previously to 1825 was of one ounce, and binary multiples up to 256 ozs.?—I thought that both those series were in use.

1165. And that the old series was superseded by the new series under the Act of 1825?—I was not aware of that; but they were not all the weights in use, for I have found in one or two cases very odd troy weights stamped. There was one stamped at Westminster of 84 ozs.

1166. Was that previous to 1825?—I do not know when it was stamped. I found it this year or last. I also found another, I think, of 70 ozs. in Ludgate Hill; and the only test that I could apply to it was this:—I made a very nice calculation on paper of what it would weigh by avoirdupois weights, and with the permission of the person to whom it belonged, and for my own information, I put it into the scale, and found that it was not correct, it was a little too heavy, 12 grains I think.

1167. But those were quite exceptional cases, I presume?—I have never seen others. There are a great many silversmith's shops and gold-lace people about Little Britain who sell a good deal, and there are also a few working silversmiths who adopt the ounce and a decimal scale of 10, 20, 40, 50, and 60 ozs.; that division is very much in use.

1168. Is that decimal series distinct from the series of decimal bullion weights?—I should think they are the same, only we have no standard for them; they are not stamped unless they are stamped here.

1169. Are you not aware that no weights and measures, except standards, are stamped here?—There are no standards in the city of London of those weights, but there is a very strong feeling amongst silversmiths at the present time on the subject of their weights. There is one highly respectable house, where about 12 months ago I found that some of their weights were light; they are in the habit of plugging them with lead, which I conceive to be very incorrect and improper, but they have almost forbidden me to examine their weights, and have referred me to their solicitor.

1170. Were those decimal weights?—No; ordinary weights. The first time that I went round very many of them were plugged with lead.

1171. (*Chairman.*) On what legal grounds did they make the objection?—That I had no business in their warehouse.

1172. What Act of Parliament did they rely upon?—That I did not ask them. They said it was a question now under consideration, and they referred to the case of some silversmiths in the Brentford district, under the inspection of Mr. Gregg, which I dare say the Commission have heard of; and as that case was not decided, I thought that I would wait and see whether there was any decision on it.

1173. (*The Warden of the Standards.*) Are you aware that case has been decided by the justices?—Yes, but then it was appealed against and there was a case given. The report in the newspaper said that the permission to state a case was given, but whether they carried it out I do not know.

1174. In those cases where they objected to your authority were they places where goods were bought and sold by weight?—I should say they sold by weight, and if not directly, they charged by weight, that is, supposing they manufacture a cruet stand or a cup, or a sugar basin of silver, the price of that is regulated by the weight, and the weight is decided by their scales and weights.

1175. Do you then consider that under the Act they come under your inspection?—Quite so. I do not know whether I am wrong, but the construction that I have put upon the Act of Parliament is that wherever scales and weights are in a place in my district where goods are kept and exposed for sale, I have power to inspect them.

1176. (*Chairman.*) Have you ever in the course of your duty been asked to compare metric weights or have you had no application upon the subject?—I have not been asked to compare them, and I have no metric standards.

1177. Are you aware that the Commission have recommended that metric weights and measures should be allowed to be used in this country, metric standards being provided and copies to be provided to inspectors when required?—I have heard so.

1178. In the event of that recommendation being carried out by law, do you not think that confusion and public inconvenience might be caused by having three different concurrent systems of weights and corresponding standards, that is to say, of troy, avoirdupois, and metric weight?—No, I do not think that it would lead to much confusion.

1179. I suppose that you would never have three concurrent systems as to the same thing?—No not in one shop.

1180. Supposing that the troy weight was retained, you necessarily would only have troy and metric in one house and avoirdupois and metric in another, you would not have three kinds of weights used for the same articles?—Not in the same warehouse I should think, the precious metals are not much sold where other things are.

1181. If leave was given to sell either precious metals or ordinary goods, by the metric system, you would not have more than the two systems in use for any one description of goods?—Not if goods were prohibited being sold by troy weight.

1182. At present troy weights only are used in certain cases and only avoirdupois in others?—It is so.

1183. If you added the metric system, you would only have two systems in use for the same description of goods, metric and avoirdupois for some things and metric and troy for others?—I should think not.

1184. You do not anticipate that you would ever find one description of goods being sold by all three systems?—That would depend entirely upon the contract and the people themselves; the metric system is very little used.

1185. At present it is not legal for ordinary purposes, but in the event of its being made so, you do not see any great inconvenience that would result from it?—No, if I found metric weights and had standards, I should try them by those standards. If I found troy weights of course I must use my troy standards so far as inspection goes, but as to the inconvenience to dealers on bargains being made, that I cannot speak to.

1186. Of course there might be some inconvenience in their being two concurrent systems, but what I wanted to know was whether the existence of troy weight as well as avoirdupois weight would be likely to complicate it, whether the inconvenience would be nearly as great if there were only the avoirdupois and the metric systems concurrently?—I do not think that it would make much difference.

1187. Considering the limited extent to which troy weights are now used do you think that it would be expedient to take the present opportunity of abolishing

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troy weight and substituting either avoirdupois or metric weight?—It would only make the tradespeople alter their troy weights for the ounce and lb. avoirdupois. I do not think that after the change had been got over there would be much difference. There may be some advantage in the small subdivison of troy weight for very small quantities of the precious metals, but then they could go to the grain in avoirdupois weight.

1188. Have you ever considered whether it would be expedient to require by law that all balances used for buying and selling should be tested and stamped before use?—I do not see much use in that, because the balances so frequently get out of condition that they want adjusting, and although they might be stamped one week they might require altering the next, unless they were so constructed that they could not alter.

1189. You do not think that it would be desirable to establish such a regulation?—I think it would be a great deal of trouble without much practical utility. For instance, I only saw yesterday a new machine which had been in use a very little while which was out of order, because the wood had got dry; there would be no advantage in having that stamped.

1190. (*The Warden of the Standards.*) Would it not be a certain guarantee that they were constructed upon a proper principle?—If a stamp had to do with the principle of construction it would be, but I am not acquainted with the construction of balances.

1191. We have had two kinds of balances produced before us with porcelain plates which appeared exactly similar; one was shown to weigh correct in whatever part of the plate you placed the weight, and the other was shown to be very incorrect unless you placed the weight exactly in the middle. Would not a regulation that balances should be stamped before being used, prevent such balances of improper construction getting into use?—If it is applied to the construction certainly; because the stamp would not be put on a badly constructed one, but it would not secure that they should retain their good condition.

1192. (*Chairman.*) As to measures of capacity, what are the several denominations, and of what material are those which are most commonly tested by you?—From half a gill to a gallon and a bushel, and they are made of wood and pewter.

1193. What is the exact method by which you test them?—The pewter measures are tested with water. Our standards for liquids are made with a ground edge and the water is struck off straight with a glass and then poured carefully into the measure. As to the wooden ones, I have a rule that was provided for the use of the inspectors in the city of London, and we take the diameter and the depth of the measure and add them together and we have a scale to show what a bushel, half-bushel, peck, and a quart should measure. We only use it to wooden measures, not to pewter measures.

1194. Why is it only used for wooden ones?—Because you could not put liquid into a wooden measure, it would not hold it.

1195. (*The Warden of the Standards.*) Have you ever tested them by seed?—No, they are tested with seed by the stamper.

1196. (*Chairman.*) You were speaking of the liquid measures, did not you tell me that you have a rule showing what the depth and size should be?—Yes, a certain rule, but that only applies to such measures as we meet with about the city at this season, especially for peas and coke and such things; and in some of the large seed warehouses into which we go, there are wooden bushel measures which have been tested and have a stamp upon them.

1197. There are wooden bushel measures, but you cannot use this rule for liquid measures I suppose?—No, we meet with wooden bushel measures in use, and if we suspect them, we take the diameter and the depth, and so test them by a scale graduated on purpose.

1198. You can test a bushel in that way, but you cannot test a liquid measure?—We do not test liquid, in that way. I suppose it would apply to a quart pot, but we do not do it.

1199. I think you said that wooden measures were not water-tight?—Very seldom, some of the better sorts in the seed warehouses and wharves may be; they are generally bound round with iron.

1200. Have you ever tested casks purporting to contain a certain measure, for instance, a nine-gallon cask for beer?—No. I do not know that they are ever marked as nine gallons. They are reputed as nine gallons.

1201. Have you ever found any confusion or difficulty arising from vessels which were not considered to be measures being taken for exact measures?—Yes, in certain cases in my district there is a tendency to say that they are not measures or weights unless the denomination is on them. If we find a pint marked on any vessel, then we call it a measure.

1202. Is there not this danger, that the tradesmen may tell you that they are not measures and their customers that they are?—Where I have summoned in a case of that kind, it has been pleaded that they were not measures.

1203. You imagine that customers were made to believe that they were?—Customers generally believe that they are when they see them used as measures, especially for milk. Perhaps in my district that has been more the case than with regard to anything else.

1204. (*The Warden of the Standards.*) Do you think that there ought to be a conspicuous distinction between vessels and measures?—Yes; I should say that every measure should have its denomination marked on it.

1205. And do you think that it should be of a particular construction, for instance, there are milk measures and milk cans that are used by milk sellers. Do you think that the milk measures should be of a peculiar shape or marked in a peculiar way, so that they might be at once distinguished from milk cans?—I think it would be well that they should be. But we can distinguish a milk can directly. Certain measures, if I may call them measures, were introduced when the price of milk was very much raised in consequence of the cattle plague. People did not like to see a measure that was not full, and some milk sellers could not trust their subordinates as to how much they put into the measures. The consequence was that they had measures made of thirds and sixths of quarts, and thirds and sixths of pints, and they called them pennyworths or halfpennyworths.

1206. (*Chairman.*) Do you test measures for milk and cream?—Yes, we test them and require them to be stamped. For instance, I summoned a person for using two measures which were not stamped, and it was pleaded that they were not measures.

1207. What is the method of stamping measures for liquids?—That is done in the stamping house. I do not know.

1208. What sort of stamp is it?—It is the city shield bearing the dagger with the V.R. on each side and the Crown over it. That stamp is used on all pewter pots.

1209. Are the measures of capacity for dry goods always made of wood or only occasionally?—I only see them in wood, but I have heard of them in iron in certain trades, such as in periwinkles and some sorts of fish; where there is a great deal of wet, the wood would absorb it and alter the measure; but they are very scarce indeed. I believe a stamper could answer that question whether he stamps any that are not wood.

1210. What are the ordinary denominations of measures for dry goods that are tested by you, and for what purposes are they intended?—They go down to gills, little wooden measures, gills, pints, and half-pints; they are very much cheaper. Where they sell seeds of any description they are all wood.

1211. As to measures of length, do you inspect many such?—I have gone into nearly every whole-

sale house in my district in the city, and have gone from the top to the bottom of them and examined the yard measures. You will understand that there is a stamp at each end of the yard, and if the stamp is originally put on quite at the edge of the yard, and the stamp is found complete, there is no use in measuring it.

1212. Of what material are they ?—They are of brass and wood. The brass measures are mostly fixed in the counters, and there, of course, there is no wear or tear.

1213. Do you know any reason why measures of length other than the yard, used for trade purposes of buying and selling should not be tested and stamped, for instance, the subdivisions of the yard used in the sale of silk, woollen, cotton goods, &c., and the foot and its multiples and subdivisions, used in the sale of various articles, such as timber, sheet glass, gutta-percha, india-rubber, &c. ?—If they are bought and sold by the foot, I see no reason why the foot measure should not be stamped as well as the yard, but generally speaking they are bought by the half yard and quarter yard. There are perhaps some few things that are sold by the foot.

1214. Have you considered the expediency of requiring by law that all weights and measures, when sold as such, for instance, two and three foot rules divided into inches, should be previously compared and stamped by the inspector, as a certificate of their accuracy and proper construction ?—I have not considered the point, whether it would be good or bad ; of course there are carpenters' rules, and a variety of things are bought and sold by them, and it would be desirable that they should be certified as correct, and it would be a great convenience to workmen to be sure that they are correct when they are working.

1215. I think you stated that you have no general or particular instruction for the discharge of the duties of inspection ?—Not any, we are obliged to consider the circumstances of each case, but the general tendency of the aldermen or justices in the city is to be not too severe, and to make a distinction between a case where fraud is suspected and otherwise.

1216. Have you any regular system laid down for your visits in your district ?—I pursue a system myself to secure that I go everywhere ; the large wholesale houses where there are nothing but measures of length, I do not perhaps go to above once a year ; large wharves and warehouses, where there are quantities of weights very much under the inspection of scale makers, I go to twice a year ; but publicans, butchers, bakers, and chandlers' shops and such trades as those, and markets, I may go to perhaps five or six times a year, and perhaps to the new Metropolitan Meat Market, sometimes every week, more especially on a Saturday, to look after what we call the small scales, where the retail trade is going forward. On other occasions, when we think that they are not so busy, we go and examine the large scales.

1217. What is the extent of your district of inspection ?—It is half the city ; it divides by Queen Street in Cheapside to the water side, up to Finsbury, Temple Bar, and round by way of Barbican ; it is the western half of the City.

1218. Where does it strike the river?—At Southwark Bridge and Temple Bar.

1219. Can you inform us what is the total population and the number of shops and other places subject to inspection ?—I cannot say the total population.

1220. Do you know the number of places subject to inspection that you visit ?—I should think upon the average it would be about 1,250, but I would not be positive about that, it may be more.

1221. Do you inspect many weights and measures and balances in open places other than shops, such as large markets, and wharves ?—Yes ; wharves consist of large warehouses more than of actual wharves, but we inspect in the streets the barrows of costermongers.

1222. Have you met with any metric weights and measures at any time in your visits ?—Yes, but not many.

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1223. For what purposes were they used ?—They are used mostly in houses who do business with France, and receive goods invoiced to them by metric measure, and they keep a few weights and scales in order to test them as they come into their warehouses, but not for sale here. There is one place I visited only last week where they have not an English weight in the house, and they have two scales and many metric weights.

1224. What sort of a shop was that ?—For the continental carriage of parcels, and so on. They said that they did nothing but the foreign trade. I had almost a dispute with them about it. They said that in the continental trade all their things were charged by those weights : still I maintained that as being charged for carriage, it was lawful for them to use only English weights.

1225. Have you met with any weights and measures other than those denominations for which there are official standards, or any so-called local or customary weights and measures ?—Not by local or customary names. I have met in one or two instances with weights which did not agree with the standards, and they have put them away and got others made.

1226. Do you mean intermediate weights ?—Yes, they have been made on purpose to avoid any mistake in making up the weights, where they sold chemicals, I think of a certain quantity.

1227. Do you mean such as $3\frac{1}{2}$ lbs. ?—Yes, something of that kind, but such a case was very rare, and they have put them away and now use the legal weights.

1228. Do you experience much difficulty or annoyance in the exercise of your duties of inspection ?—Not much, indeed very rarely. During my four years I have never once been complained of as being intrusive. There was that case that I spoke of with regard to the troy weights, and there was another in which a man was very rude. That is all that I have met with.

1229. What class of shopkeeper was he ?—He was rather a violent man, and had weights and scales, but he said that he did not use them for selling. I tested them and they were light. I should have given him a caution, and was waiting to do so, but he got angry, and he took them out of my hand. I certainly did not summons him for obstruction, but that is all the obstruction that I have met with.

1230. What is your practice as to the errors of weights, measures, and balances that you seize as defective or make the subject of informations ?—The errors will vary, but generally speaking, when we compare them with the standards and there are but small errors, they get them rectified ; for instance, when they only come to $\frac{1}{4}$ oz. or $\frac{1}{2}$ oz. and under in the larger weights. If it were 3 ozs. or 4 ozs. we should take them at once. If they do not attend to a caution, we take them, but we very seldom succeed in getting convictions if the deficiency is very small.

1231. Have you found much difficulty arising from the provisions of law by which you are empowered only to inform against persons using or possessing faulty or defective balances, and not to seize such in shops ?—I do not know that I have.

1232. Have you ever seized a defective balance ?—Not in a shop. I have in the streets.

1233. Have you the power of seizing a balance by law ?—Yes, in the street, but not in a shop.

1234. Have you ever found any inconvenience from that regulation ?—Only that the characters we seize them from are rather rough, and we may perhaps get obstructed, or they may create a noise in the street.

1235. I mean, have you found any inconvenience from being unable to seize them in shops ?—There has been only this inconvenience, that I could not seize them.

1236. Has that been any impediment to your ob-

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taining convictions against people that you have reason to believe had a defective balance in use?—We summon them for using it and they are convicted. If they suspect the correctness of the evidence that is given against them, I have generally my assistant with me and he would confirm my evidence.

1237. If you take a balance it would stop their business, but if you take a weight it does not?—No, they get another weight in many cases, but very often you cannot take a balance unless you have a cart with you.

1238. Do you think that you ought to have power to seize false balances where there is evident fraud in connection with them, and it is not an accidental or a temporary defect?—I do not know, I think you may generally prove what you see.

1239. To what extent are the larger weighing machines and those with special weights showing a much larger weight on the lever principle, and including steelyards, subject to your inspection?—What we do with them is this, and we cannot do much more under the provisions of law, we have to be content with the balance to inspect it with a weight on. But I have gone further than that, I have put on first of all a 28 lbs., and I may find it ½ lb. wrong; I have put on 56 lbs. and I may find it 1 lb. wrong; I have put on ¾ cwt., and I may find it 2 lbs. wrong. In one or two cases of carriers last year, I summoned them, and they were fined, but of course we can test their balance weights only by our 56 lbs. and others amounting to not quite a cwt.; we do not carry more. We want something by which their heavy weights should be tested.

1240. There may be cases where an error would be imperceptible in a 56 lbs. weight, but when you come to a larger weight it would be?—I think it probable that a larger weight would detect an error that a smaller would not.

1241. Have you ever interfered with balances, with balance balls?—Only so far as to require the people who use them to be very particular. Their balls are entirely in their power, and we require that they should be made as much a fixture as possible.

1242. Do they not say that the ball being a fixture prevents its being of any use at all?—If it is a fixture; there is a medium about fixing, some are made with a hook and can be hooked off at any time. All through my district, the hook is clenched; but then there is a screw, and if the screw is rivetted, the ball would be of no use to them in the absence of a mechanic.

1243. The object of the balance ball, where it is used, is to enable them, is it not, to adjust their balances themselves?—Yes; but in the hands of a dishonest man of course they may be used for purposes of fraud, there is no question about that.

1244. But on the other hand if it is a fixture it is of no use except as an ornament, is it?—I do not look upon it as an ornament; they are nice and bright, some of them, in certain trades, but not very much to look at. I have known large scales that had balance balls on, but there has been no screw to them and I have found them loose, and I have required them to be altered and made fast to the balance.

1245. Those who use them profess to do so with the object of being able to adjust the balance?—Yes.

1246. And they say it cannot be adjusted without?—From long use I dare say they think so, and that they can keep the scales in better condition.

1247. But with the ball they can adjust them themselves?—Yes, but there are many scales made without balance balls. In the hands of a honest man, a ball will give him an opportunity of making his balance right, where his plate alters in weight or where the oil gets a little corroded and the thing does not work so well. Generally speaking the balance ball is so large that he could not take it off and work the scale without it, but he might empty it.

1248. (*The Warden of the Standards.*) But you do not interfere with a balance merely because it has a balance ball?—No, not if it is correct.

1249. But are you aware that some inspectors inform against all balances that have balance balls?—I have heard so; they were very generally in use in my district when I entered upon it, in consequence of their almost having been sanctioned. I am aware of the decision which was given about that question at Tunbridge Wells, and what it has led to in many districts; but we have insisted upon their being made fixtures to the balance, and I have always enforced the idea that if I found an error where there was a balance ball, I should listen to no excuse.

1250. (*Chairman.*) Have you interfered with any other balances of peculiar construction, such as balances with special pans for coals?—No, not if they are correct, if they are incorrect I tell them "This is an incorrect balance."

1251. (*The Warden of the Standards.*) Are you aware that the inspector at Tunbridge Wells objected to the pan for coals as being illegal?—I do not know what he called pans, we generally call them scoops in London.

1252. He objects to the scoop altogether and says that it is illegal, but you do not think so?—No, if the balance is right I do not see that it is illegal.

1253. Does it appear to you to be a necessary part of the balance?—Quite; indeed I cannot see how they can sell coals in a flat scale, unless they put them into a sack, and then if they did that, it would involve the necessity of tareing. Now they put the coals into the scoop, and the scoop is on a pivot, and it turns into the sack and the coals are weighed without the sack. At the large wharves where they weigh coals and put them into carts, they use iron balances and they weigh the sacks with them; they use the sacks sometimes sack for sack. With regard to coal weights, I remember a case that I had with a coal merchant. In order to avoid the necessity of tareing, he had small weights made for the weights of the sacks, 4 lbs., 2 lbs., 3 lbs., and 1 lb., and before they went out, the weight was marked upon the sack, so that the two brought it up to the proper weight to be put upon the scale. The consequence was that those weights wore a great deal, and the scale maker had introduced some lumps of iron without any denomination upon them, but calling them 4 lb., 2 lb., and 1 lb., and he wanted to make out that they were not weights; however, he was convicted on the ground that anything that was put upon the scale to balance the scale while the goods were in it, was to all intents and purposes a weight.

1254. Have you ever inspected the weights and scales that are carried about in coal carts?—Not the weights and scales, but we are specially charged to examine the carts to see that they have weights and scales. It would be a question whether I should have authority to stop a cart and try the weights and scales till they were in use; but they are bound to carry them, and if they are delivering coals, we search the cart and see that their weights and scales are there. In the old reports of the city inspection, you would be surprised at the number that were convicted in the year for not carrying them; but the cases are very much diminished of late.

1255. You do not test the weights and scales themselves?—Not unless I see them weighing the coals, and that I have never met with yet. If I was passing a place, and saw a man demanding his coals to be weighed, and thought the weights looked bad, I should then feel myself at liberty to try the weights.

1256. (*Chairman.*) Do you think it would be an improvement in the law if the inspectors in Great Britain were empowered and required to detect and inform against all frauds in connection with weights, measures, and balances, as well as false and defective instruments; for instance, frauds in the method of weighing as distinct from the balance itself, and frauds in making up beforehand, and selling goods in parcels of defective weight or measure?—I think that that would very much indeed increase the duties of the inspector, and be an additional protection to the public. I believe that there is more

fraud carried on with just weights and measures than with unjust ones. And I rather think (I perhaps may be wrong) that the Act of the 22nd and 23rd of Victoria is defective in that point with regard to the public streets. The penalty for fraud is left out. You may seize the balance if you see a fraud committed, but there is no penalty put into the section.

1257. What is the legal effect of this provision of the Act; does not it make it a misdemeanor?—I do not know. A fraud which is commonly committed, and which I have seen in the streets, is selling 3 ozs. for 4. They have a 2 oz. weight and a 1 oz., and they put the 1 oz. under the 2 oz.; people think it is 4 oz., and instead of a quarter of a pound they only have 3 ozs. I have stood by and seen it done, and stopped people, and said, "What did you ask for?" or "What do you think you have got?" "A quarter of a pound," is the answer. "No," I say, "you have only got 3 ozs." They have gone back to the barrow, and the man has unwillingly given them the other ounce. I believe that under the Act I could have seized his weights and scales, but the man could not have been fined.

1258. Could you have seized them on the ground that his weights and scales were defective?—On the ground of fraud being committed.

1259. That would put him to the expense of other weights and scales?—Yes, it would do that certainly, so that it is a sort of protection. But with regard to those street costermongers, if they are only a few grains light we do not interfere.

1260. Are you aware that such powers and duties are imposed by law upon the inspectors of weights and measures in Ireland?—No, I have not had occasion to think about Ireland.

1261. In your duties of inspection, and in informations laid by you, do you observe a marked distinction between cases of wilful fraud and those where there is no intent to defraud?—Yes.

1262. Do you think it expedient to establish a regulation that in cases where persons are convicted of fraud, or where there is culpable negligence, their names should be publicly advertised?—I think with fraudulent men there could be no harm in that; they generally do get advertised. In many cases I mean they are reported, and a good deal is thought of it.

1263. (*The Warden of the Standards.*) Are you aware that under some local acts for metropolitan parishes, the magistrates are empowered to advertise the names of persons convicted?—I have heard so. I think there have been some such orders given from the Court of Aldermen, with reference to licensed victuallers after certain offences, for the third or fourth offence, or something of that kind.

1264. (*Chairman.*) What is your opinion of the employment of police officers as inspectors of weights and measures?—I do not think that the police officers in London could do it better than we do.

1265. Are you aware that the police officers receive no remuneration for their duties in connexion with weights and measures where they are employed?—I was not aware of that. I had heard of their being employed in the country, but I did not know whether they did it without remuneration.

1266 Have you any opinion upon the fact of their being employed in the country?—No. If they are suitable men they might be employed, but I have no knowledge of them; my observations have been confined to London.

1267. Considering the peculiar nature of the existing duties of inspectors of weights and measures, that they require practical experience, skill, and accuracy for the proper comparison and verification of weights and measures, and that the inspection is necessarily an office of a particularly obnoxious character; do you think with your practical experience upon the subject that as a general rule these duties can be efficiently performed where the inspectors receive no special remuneration for them?—No, I should think not, unless it is in a very limited circle indeed, and then I suppose the inspector would be so well known that they would be aware when he was coming.

1268. I think you say that you have not found that your office is of a peculiarly obnoxious character?—It is a disagreeable office.

1269. Have you ever considered whether the practice adopted in France of separating the duties of comparison and stamping weights and measures, and the duties of the inspection of weights and measures used for buying and selling, and assigning these separate duties to distinct officers of verification and inspection, the latter being undertaken by the police, would be expedient in this country?—So far as I understand it, it would. I think the separation of the two offices is very desirable. I do not think that the police could do the last-named duties so well as some responsible and respectable person would, though of course they are very respectable men, many of them. I do not wish to say a word against them.

1270. Do you think that the French regulation that the officers for comparing and verifying weights and measures should be engaged in no other employment, and that the districts of verification should be arranged so as to occupy the whole time of every such officer is a good regulation?—That is the case in the City of London; we have no other occupation and it is a part of our bond that we are under that we should have no other occupation.

1271. You do not compare and verify?—No.

1272. But with regard to comparing and verification, do you think that the person who undertakes them should have no other occupation?—I think it better that he should be unconnected with buying and selling in his own locality, because of course if he is a man of standing and responsibility, one would suppose that he would discharge whatever duty he took upon himself properly.

1273. Do you think it would be a public advantage that in all new appointments of public officers for comparing and verifying weights and measures, there should first be an established test examination for the qualifications and competency of the person to be appointed?—Not beyond good common sense and general knowledge of weights and measures; he ought to have that certainly. He may want a little training at first. I do not hesitate to say that I got a very great advantage from having an old experienced hand with me when I first began.

1274. Do you see any reason why such officers should not compare and stamp gas meters as well as other measures of capacity?—I have nothing to do with them.

1275. Has your attention been directed to the provisions for adding to the duties of inspectors of weights and measures, the inspection of petroleum and of adulteration of food?—With regard to the inspection of petroleum, I have the inspection of houses that have applied for licences and I have reported upon them and the reports are taken into consideration by the committee. I have been with Dr. Letheby and been instructed how to test the petroleum according to the Act of Parliament, and I have tested a considerable number of samples of petroleum and reported at what temperature it throws off inflammable vapour, and there is now a building erected close to the Guildhall expressly for our use as inspectors for the purpose of testing; but it is hardly to be called in operation yet. I think we could do that in the city.

1276. Do you find that the inspection of petroleum requires a special knowledge of the nature of petroleum?—You get a knowledge very quickly as to judging what it is. There is a machine provided, and Dr. Letheby kindly showed myself and my colleague what process to follow, and we think we can do it.

1277. I suppose that upon the qualification of the inspector depends the safety of the neighbourhood?—I do not think there is much danger in the act of testing it.

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1278. I meant that the inspector is responsible to a certain degree, because the safety of the place in which it is kept depends on his test and the report that he makes?—As to the storage, the licence gives a licence for storing so much, and the conditions of the licence must be carried out; there is also an inspection by the city architect. The building is inspected, and the report is referred to the city architect, and he makes certain requirements according I suppose to the Act of Parliament, such as sand and iron troughs and gauze wire and such things.

1279. What are your duties with regard to the inspection of petroleum?—It would be to visit the houses; we have been required to do that. I do not know that it is appointed by Act of Parliament for us to do it, but we have been required to visit applicants' premises and to report to the Committee of Aldermen in what condition and what kind of premises they are, how they propose to store it, and what sort of goods are kept in connexion with it.

1280. Do you think that the practice adopted in France of issuing specific and detailed circular instructions from a Government department to inspectors of weights and measures for the discharge of their duties, in order to ensure uniformity of action and due compliance with the requirements of law, would tend to the public advantage, if authorized and adopted in this country?—If those general regulations are really practicable, of course the local authorities would require the inspector to observe them, and if they were good instructions, they would be useful for anybody.

1281. What is your opinion of the expediency of appointing one or two Government officers in subordination to the Board of Trade to supervise from time to time under established regulations the standards, apparatus, and operations of the local inspectors?—I should have supposed, just upon the judgment of the moment, that the provision of the Act of Parliament for the verification of standards, and the supervision of the local authorities, ought to be sufficient.

1282. Do you think that there is at present sufficient inspection without any other provision?—I think with regard to the City of London it is so. I have shown the Commission that there is an annual report and a weekly report of work done, with appearance before the aldermen, and it is known to them whenever cases of complaint arise.

1283. (*The Warden of the Standards.*) Are you aware that previous to the appointment of this Commission more than one-third of the local standards throughout Great Britain had not been duly verified according to law?—I have seen it stated so in the first report of the Warden of the Standards; I think that was the first time I knew of it.

1284. Do not you think that some stringent regulation is required to prevent such a state of things occurring?—I suppose that if York sent their standard weights to the Board of Trade in 1855 they ought to come again by 1860, and if they did not come in 1860, there ought to be some power to call upon them to know why not; if they do not come in, they ought to come.

1285. That involves, does it not, a certain amount of control by the department?—Yes; there is no such control now.

1286. (*Chairman.*) Do you see any objection to a regulation being established by law under which the inspectors should be required to furnish periodically to the Board of Trade such information connected with the discharge of their duties as should be called for in a specified form, and of a similar character to that called for by the Commission for the year 1866?—Not any. I should be glad to give any information of the kind.

1287. Have you any further information which you wish to give to the Commission upon the subjects to which your attention has been directed?—I think that the practice of using lead at the bottom of brass weights to plug the weights is very objectionable.

1288. Have you any power of preventing it?—It seems to be doubtful in the Act of Parliament.

1289. Is not any plugging of weights illegal?—I admit it says that no soft metal is to be used in the manufacture of weights, but that is not meant to prevent a plug of lead *bonâ fide* necessary for the adjustment or stamping the weight. Those plugs that I speak of, especially in troy weights, have been for the readjustment of the weight by the scale maker, and the bottoms of them have been covered with lead, and they must necessarily wear.

1290. That was done by the scale makers in readjusting, and not by the tradesmen?—It was done by the scale makers, but they wear sooner than the metal would. They must have had new weights, if that had not been done. And as it is a long time since it was made necessary that the denomination of weights should be upon them, I should submit whether the time had not arrived to prohibit the use of any weight without a denomination on it.

1291. (*The Warden of the Standards.*) You think that it would be a good regulation to make, that no weight or measure should be legal unless it had its denomination legibly marked upon it?—That is so. There are a great many weights in use without any denomination upon them, and unless for the stamp, it might be contended whether they are legal weights.

1292. With regard to the mode of adjustment by lead, do you think that if the Board of Trade were empowered by law to issue regulations for the inspection of weights and measures, and for certain details as to their construction, that would sufficiently meet the difficulty which you speak of?—Yes, if they prohibited the use of lead, except for the purposes of the stamp; what I spoke of were brass weights and lead in the centre underneath.

1293. If the stamp were placed upon the lead in brass weights, would that answer?—It could not be done. They are not big enough.

1294. In your district of inspection are there any other officers of inspection. Are there any annoyance juries?—Every ward in the city had what they called a Court of Inquest, on which I have served myself and inspected weights and measures as a member of it; but they are all done away with; they do not go out at all now. Practically it has become null and void. They could revive it if they liked, but they do not. I may say that throughout the city there is not one that goes out. Perhaps I may be also allowed to say that in 1844 there were 406 convictions in my district, and in 1868 there were 46. One of the greatest preventives is constant supervision, and the principle upon which I have acted has been rather to prevent than to detect.

The witness withdrew.

Mr. Edward Morrison.

Mr. Edward Morrison examined.

1295. (*Chairman.*) You are the inspector of weights and measures for No. 3 District of the county of Middlesex?—Yes.

1296. When and by whom were you appointed?—By the justices of the peace for the county. I was appointed on the 12th of April 1855. There is a reappointment annually, but it is a mere matter of form.

1297. Had you any previous knowledge of the duties of the office?—Not any.

1298. Do your duties include the custody and care of the local standards, and the testing and stamping of commercial weights and measures, as well as their inspection as to their legality?—Yes.

1299. How did you at first get a knowledge of the

duties; had you any assistance to show you?—I had some slight information from one of my brother inspectors.

1300. You did find at first some difficulty in performing the duty?—No; I soon learnt it.

1301. Do you act under any, and what instruction?—I acted entirely under the provisions of the Act of Parliament.

1302. What Act of Parliament do you act under?—The 5th and 6th of William the 4th, chapter 63, and the amended Act, the 22nd and 23rd of Victoria, cap. 56. As to the Act for Bullion Weights, the troy system not being carried out, I scarcely ever refer to this latter Act.

1303. Are you provided with copies of the Acts of Parliament which relate to your duties, and has your attention been drawn to their provisions?—No; I find all things requisite for the office myself. The only things that we are provided with are the standards, the balances, and stamps.

1304. You have, therefore, no instructions as to what Acts of Parliament you are to look to; you have to discover the whole thing how you can?—Yes; I have had to find it out.

1305. Do you execute all the duties yourself, or have you any and what assistance?—I execute them myself, but I have an assistant whom I take with me on out-door inspections.

1306. Are you paid by salary, or have you any other emoluments?—By salary, and also I have one moiety of the fines on each conviction, and also a moiety of the proceeds of forfeited weights and measures, but that is a very small amount.

1307. Have you had occasion to form any opinion upon the relative merits of the systems of payment entirely by salary and payments partly derived from fees?—My salary is a fixed one of 150*l.* a year; and besides that, as I have said, I have a moiety of the penalties, whatever may arise in the course of a year.

1308. Do you find that it makes the office considered one of an invidious character, your deriving benefit from convictions?—I think the public fancy that we are influenced to a certain extent.

1309. You do not find that it is looked upon as an invidious office on the ground of the charge being brought by a person who receives a pecuniary benefit from the infliction of the fines?—No, I have not taken any notice of that.

1310. Do you think in other places there is often much slackness on the part of the inspectors who do not derive any benefit from the fines, and that that has an injurious effect upon the public?—I should be inclined to think that where a portion of the penalties is allowed, it induces the inspector to look after that duty; a man of the world would do so, no doubt.

1311. The convictions are very often rather small in number, are they not, where there is no such system?—I think that it occasions slackness.

1312. What is the annual gross amount which you receive?—My fixed salary is 150*l.* a year, and last year I find that I received a net sum of 33*l.* over. I should mention that we pay all the rent of the station where our standards are kept, and for an assistant, as well as the hire of a horse and cart, and, in fact, everything connected with the duty; to meet that we receive a moiety of the penalties, and make the best we can of it. It is only by economy that I can get my salary clear.

1313. What do you suppose is the average net annual remuneration that you obtain?—I should set it down at 180*l.*

1314. What would be the gross amount?—About 100*l.* for penalties, and 150*l.* salary; that would be 250*l.*, and my expenses would be about 70*l.*

1315. The 33*l.* which you mentioned would be what you have over and above after the expenses are paid?—Yes, that would make it about 180*l.* last year.

1316. As to the false and defective weights and measures, or balances, that are seized and condemned, what becomes of the proceeds, do you profit by them?—Yes; but it is very small.

1317. What becomes of the other half of the proceeds?—It is paid to the county treasurer.

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1318. With respect to your local standards, how many have you in your custody?—I have a copy of all the imperial standards of avoirdupois weights, troy weights from 1 lb. downwards, imperial measures, and the standard of length.

1319. Have you any decimal bullion weights?—Not any.

1320. What precaution is taken for the security and preservation of your standards?—I find simply the office; that is all. They have to take their chance. They are locked up when I leave.

1321. In whose charge are they left?—Not anybody's. They are only under my key.

1322. How often do you use them?—I use them for the purposes of stamping twice a week.

1323. How long have they been in use?—Since 1834.

1324. How often are they re-verified?—Every three years.

1325. Who gives directions for their adjustment and re-verification, and who is responsible for their being duly re-verified according to law?—The clerk of the peace.

1326. By whom are the standards adjusted?—Messrs. Young and Son, Bear Street, Leicester Square.

1327. How long does the adjustment and re-verification of the local standards take? What would be the time during which you are deprived of their use for comparing weights and measures?—About a fortnight.

1328. Has any public inconvenience consequently arisen, or have you other copies of the standards to use in the meantime?—No public inconvenience has arisen, nor have we any extra standards.

1329. You make no use of them; you simply cease to inspect or to stamp during that fortnight?—Yes, during the fortnight, that is so.

1330. What balances have you in use?—I have six beams and scales for the office, and five for out-door inspection.

1331. How often are they adjusted, and by whom?—Once a month, by Messrs. Young.

1332. What other apparatus have you for the discharge of your duties?—There is nothing but the stamp and the stamp press for wood measures. I stamp bushels and half-bushels and so forth instead of branding them. I find it so much better.

1333. What stamps do you use?—They are simply steel dies.

1334. What is the stamp that you put upon them?—The county arms, with the number of the district, and also the initial letter of the inspector [3 M.].

1335. How many stamps have you?—I may say 20; we often break them.

1336. Are they furnished by the county?—Yes; they are furnished at the county expense.

1337. What accounts do you keep?—I simply keep an account of the cash that I receive for stamping weights and measures; it is also an entry of the name and address, and the denomination of the weight or measure that we stamp.

1338. What books do you keep as an inspector?—I keep notes of my inspection. Here is one of my note-books (*producing the same*).

1339. Have you no books with printed columns?—None whatever; the county does not find us even stationery.

1340. You put them down merely day by day, without any classification of the trade?—Yes, just as the case transpires, so I take a rough note and copy it in that book.

1341. Do you have to give in that book to the authorities?—No.

1342. Is that book never called for by any authority?—No, I make an abstract of the cases, and whenever there is a meeting of petty sessions for the different districts make out an abstract for them.

1343. Do they call upon you for this account?—

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I always give it, about once a month or six weeks; it serves as a guide to the chairman; it varies with the different divisions. The Holborn division I attend, and the Kensington division, and the small country district of Gore Hundred. Those are the three divisions that I attend.

1344. (*The Warden of the Standards.*) What portion of your time is taken up by attending those petty sessions?—It only takes a day about once a month; there are seven days fixed for Kensington in the year, and seven for Holborn.

1345. (*Chairman.*) That is the only account that you render?—That is the only account of the cases that I render. Then I render a quarterly account of the fees that I receive for stamping (*producing the same*).

1346. Do you render some account also of the fines levied?—The fines are recorded on this paper kept by the clerk to the justices.

1347. Is this list the one that is given in at the petty sessions?—No, that is a quarterly account of all fees for stamping weights and measures which are paid in quarterly to the county treasurer. I furnish this account once a quarter.

1348. What regulations are established for the testing and stamping of new commercial weights and measures?—All new weights and measures for the district are brought to me for examination, and if correct I stamp them.

1349. What are the arrangements for their comparison after re-adjustment?—When weights or measures are brought by the makers or tradesmen to my office for stamping I test them with the standards, and if correct I stamp them, and then they go into public use directly.

1350. But when they have to be re-adjusted, how is that managed?—The scale-makers or the measure-makers do that; if they require re-adjustment they would bring them to me to be re-stamped, just the same as new weights and measures.

1351. (*The Warden of the Standards.*) Have you a fixed time for them to be brought?—Every Wednesday and Saturday from 11 till 2; those are my stamping days.

1352. (*Charman.*) Where is your office situated, and what arrangements do you make for attending there?—41, Museum Street, Bloomsbury.

1353. Have you an office as inspector also?—That is the same.

1354. (*The Warden of the Standards.*) Is that office found you by the county?—No; I have to pay for that office.

1355. (*Chairman.*) How long are weights and measures kept at your office before being returned to the owners?—They are all tested while they wait for them.

1356. Have you ever been called upon to compare any weight or measure in which minute accuracy has been required?—I do not know an instance of that.

1357. Do you ever adjust any weights or measures when they require it?—They are always done by the makers, and if they are inaccurate at the time, which is sometimes the case, they are altered in my office. I have the tools there and they can just do it themselves; I do not touch them.

1358. Have you ever considered whether there is a public advantage in an inspector of weights and measures being allowed or being in the habit of adjusting weights and measures?—I think it would be very prejudicial to the public for an inspector to do that.

1359. I suppose you know that it is done in some country places?—I think it is a bad system.

1360. Will you describe the process of the comparison of weights?—I simply place the standard required in one scale and the weight to be tested in the other, and if I find them within a shade of the standard I pass them. It is almost impossible to get them exactly to the standard, at least, that is with weights.

1361. Did you ever weigh with the method of counterpoise, that is to say, first counterpoising the standard and then removing it, and substituting in the same pan the weight to be compared?—No; I never tried that way. I have occasionally, when the weight has been so near the standard as to cause a little doubt in my mind, changed the weights from one scale to the other, simply to prove the beam; that is all.

1362. Do you generally find the new weights accurate when sent for comparison?—Yes; as a general rule.

1363. Do you reject many weights and measures that are sent for comparison?—Occasionally.

1364. What is your practice as to the allowance of error or draught on such weights and measures?—A 56 lbs. ordinary cast-iron weight I should certainly pass if it were within six drachms. Six drachms over the standard may be allowed in a rough new cast-iron weight, because the mere friction of the carriage would wear it off, and if it weighed within that I should stamp it, and it would be right before it got home.

1365. Do you never stamp any under weight?—No; never under. We like to keep on the safe side, but with small weights, a 1 lb. weight, for instance, it might move the index of the scale, perhaps, a quarter of an inch or three-eighths of an inch, just the turn of the scale.

1366. Do you compare earthenware or glass weights, and do you ever stamp any such weights, that is to say, weights other than of iron, brass, or gun metal?—I stamp both china weights and glass weights. I stamp several china weights.

1367. Do you ever compare and stamp any weights or measures of other denominations than the official standards?—Never.

1368. Do you compare and stamp troy weights?—I have only stamped two sets, I think.

1369. Have you ever considered the provisions of the law, whether they do not require troy weights to be stamped and inspected as much as avoirdupois weights?—I think it is quite as necessary, but the provisions of the Act of Parliament are so very vague on the subject that I do not like to risk testing them. I think it is quite necessary that they should be, because the most valuable articles are sold by them.

1370. But does not the law require it?—The 10th section of the 5th and 6th of William the Fourth, chapter 63, says, "That from and after the passing "of this Act, all articles sold by weight shall be "sold by avoirdupois weight, except gold, silver, "platina, diamonds, or other precious stones which "may be sold by troy weight." The word "may" lays it rather open to doubt. There are a great many troy weights, I have no doubt, in my district in use that have never been tested for years and years.

1371. (*The Warden of the Standards.*) Do you think that the law requires amendment in that respect?—Decidedly.

1372. (*Chairman.*) The Act of Parliament refers rather to the weight by which gold should be sold?—It says in the general Act, the 5th and 6th of William the Fourth, that we shall inspect all weights and measures, but as to troy weight, certainly, it is open to very great doubt as to whether the inspector has to do it. I think it is absolutely necessary that it should be done.

1373. Have you ever been asked to compare or stamp metric weights, or has any application been made to you upon the subject?—I have been asked many times whether I would do it, but I have never had a metric weight sent to me.

1374. Are you aware that the Commission has recommended that metric weights and measures should be allowed to be used in this country; metric standards being provided, and copies to be provided to inspectors when required?—I am not aware that that has been recommended.

1375. In the event of this recommendation being carried out by law, do you think that any confusion

or public inconvenience might, or might not, be caused by having three different concurrent systems of weights and corresponding standards?—I think great public inconvenience would arise, unless the form of the weight were to be very different to what it is at present. In the avoirdupois 2 lb. and the French weight, which would come very near its size, there would be a difference of about a quarter of a pound only, I believe, between them, and I think fraudulent dealers would take very great advantage of that, unless there was a marked distinction between the weights.

1376. There is no doubt that we should adopt a peculiar shape for the metric weights, but the question is, whether there being three systems by which goods might be sold, troy, avoirdupois, and metric weights, that would be a source of great inconvenience to the public?—I do not think it would be any inconvenience if the distinction was kept up.

1377. Have you ever considered whether it would be expedient by law to require that all balances used for buying and selling should be tested and stamped before use?—I do not think it is at all requisite, because even in the carriage of a balance it might get injured, and if they were stamped, tradesmen would plead that we left them in that state. I think with weights and measures there is little chance of their altering, but with such cumbrous things as balances, I fear that it would be almost impossible to prevent it.

1378. The point which was suggested in the former question was, whether the permissive adoption of the metric system might not make it expedient that troy weight should be abolished altogether; have you considered that point at all?—I think avoirdupois weights would answer all purposes of trade.

1379. You would still have two concurrent systems, the metric and the avoirdupois; of course, you would not have three concurrent systems for the same description of goods, would you, even if troy weight did remain in existence?—There would be only two, if the metric system was adopted.

1380. You would have troy and metric weights in one case, and avoirdupois and metric in the other; you would not have all three systems adopted for the same goods?—No.

1381. (*The Warden of the Standards.*) You find, do you not, that both avoirdupois weights and troy weights are now used in all chemists' shops?—I should say, of course, they have troy weights in chemists' shops because they are the apothecaries' weights.

1382. Apothecaries' weights are troy weights, are they not?—Partially only. The grain and the ounce correspond with troy weight, but there are the scruple and the drachm in apothecaries' weight for which there are no standards, and I suppose there is scarcely a chemist in London who uses a stamped apothecaries' weight.

1383. The scruple and the drachm must soon become entirely out of use, must they not; because they are legally discontinued by the medical authorities?—I was not aware of that.

1384. (*Chairman.*) At present, I suppose there are certain classes of goods sold by troy weight, and the rest by avoirdupois?—Yes, the precious metals, precious stones, and other things are sold by troy weight.

1384. Do you think that the adoption of the metric system as a third concurrent system would cause any confusion which would be remedied by abolishing the troy weight?—I cannot see that it would make any difference. I think tradesmen will use what will suit their purposes best; and chemists, I think, would keep to troy, and if that were abolished, I think they would take to avoirdupois.

1386. So that you would still have two concurrent systems?—Yes, and a standard weight could easily be formed for the small quantities. You can easily have a standard grain avoirdupois which would make the small divisions.

1387. Have you considered the expediency of requiring by law that all weights and measures when sold as such, for instance, two or three foot rules, divided into inches, should be previously compared and stamped by the inspector as a certificate of their accuracy and proper construction?—No, I have not considered that at all; I simply stamp the yard measure, and there are no subdivisions to that.

1388. What regulations have you for examining and stamping measures of capacity?—I test all liquid measures by comparing them with the standard with water, and all dry measures, such as those used for corn and coke and other similar articles, and for all dry goods, are tested by filling the standard with small seed such as rape seed, and striking off the surplus seed and then putting it into a hopper and letting it run into the measure. Then in the case of water I fill the standard first with water, and I use a strike glass to keep the proper quantity in, and then transfer it to the measure that is brought, and they generally come pretty near I think.

1389. As to measures of capacity for liquids what are the several denominations and of what material are those most commonly tested and stamped by you?—The material of the measures for liquids is generally pewter, and for dry goods wood and iron.

1390. Are the pewter and the iron used for the same sort of goods?—Iron measures are used for the sale of coke and rough goods of that kind, and wood measures for corn and articles of that nature.

1391. Do you ever test and stamp casks purporting to contain a certain measure, for instance, nine-gallon casks for beer?—No, I never go to breweries.

1392. Do you find any confusion between what are vessels and what are intended for measures; for instance, between the ordinary pewter pot holding a pint and the pint measures?—I allow publicans to keep only metallic measures corresponding with the standards, but they use glasses, and there is a very great system of fraud with them.

1393. (*The Warden of the Standards.*) They have tin vessels have they not?—They have simply tin cans for sending out goods in, but the liquids are measured according to the standard first.

1394. (*Chairman.*) For instance if a man asked for a pint of beer can they give him what he supposes to be a pint by accurate measure, and then maintain that it is only a vessel to drink it out of?—No, if you ask for a pint they give a pint, if you ask for a glass they give you whatever they think proper for the glass.

1395. (*The Warden of the Standards.*) Do they have glass and earthenware measures as distinct from merely vessels?—There are a great many. They have pint and half-pint glasses, and if a customer desires a publican to measure it to satisfy him of the measure, he must do so by comparison with the standard.

1396. Do you inspect those glass and earthenware measures?—I do not; I think that the law wants amending on that point very much; that is to say, that all glasses representing imperial measures should be marked as such—that it should be engraved upon them. I may give an instance:—I visit a public-house and I say who I am, and that I wish to see the measures and test them, and so forth. If I see a glass which I suspect to be a pint glass and I know very well that it is intended for such, I say directly, "Is that a pint glass," but they immediately evade the question, and I cannot prove that it is a pint, because it is not marked on it.

1397. (*Chairman.*) Do you suppose that they make their customers think it is a pint?—Yes.

1398. And it is often not exactly a pint?—No; I think it ought to be compulsory that all such glasses should hold imperial measure.

1399. (*The Warden of the Standards.*) Could glasses be marked in the nature of a stamp?—I think so; a little ingenuity would devise it. There would be some particular mark put on them by a diamond which would answer all the purposes of a stamp, the

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same as a metallic measure. Certainly very great fraud can be carried on with those glasses.

1400. And that could also be done with earthenware pints and quarts?—Yes; earthenware pints and quarts are very much used in the country, but as an inspector I have never interfered with them. I know other inspectors do, but it is one of those knotty points which I do not like much to take up. In the 21st section there is a provision for drinking cups.

1401. I see that the 21st section of the Act of the 5th and 6th of William the Fourth, expressly states that glass and earthenware jugs need not be stamped?—No, they need not; any person buying by such, if it is represented as any amount of imperial measure, can require it to be tested by a stamped measure.

1402. But you say they never do represent it to be imperial?—If they knew that I was present, they would be sure not to represent it to be so for fear I should test it.

1403. But to a customer you think they would?—To a customer they would not stand very nice upon that subject.

1404. (*Chairman.*) Do you test and stamp measures for milk and cream?—Yes, of an imperial size, from quarts down to half gills.

1405. (*The Warden of the Standards.*) Have you any difficulty in distinguishing between milk measures and milk cans which are not measures?—I should never interfere with them, any more than I should with a publican's cans for liquids.

1406. I was at my milkman's this morning and looked at all his measures and his cans, and there appeared to me to be no difference between the two until I saw that the measures were all stamped, and he explained to me that he was obliged to have several vessels that were not measures, because if they were quite full the milk would spill; do you find that distinction between the two when you inspect them?—No, I have never tried the others; the cans would hold much more no doubt than the measures, but they take very good care not to represent them as any amount of imperial measure.

1407. (*Chairman.*) If the cans will hold more, that would not cheat the customer?—It would be simply for the purpose of convenience of carriage, that is all.

1408. But in the other case, the idea was that the glasses passed off as pints, were smaller than pints, and the publican would give his customers less than they ought to have?—As to the glasses, it would be so, because the makers would not be careful enough to get them to the right size, and there is no restraint on them. Perhaps I might be allowed to mention one thing with regard to those milk measures. About a year or so ago, when the price of milk was so much increased, the milk sellers introduced measures called penny and halfpenny measures which were the $\frac{1}{5}$th and the $\frac{1}{10}$th of a quart. I seized all such when they came into my sight, because they do not represent a proper amount of imperial measure; the legal subdivisions are simply by halving down the quart, the pint, the half pint, and the gill; no other measures would I stamp; and if they represent anything as a measure, and it does not correspond with such, I take it that the Act of Parliament means that they are illegal, and we always gain convictions in such cases. Since that time they have done away with those halfpenny and penny measures; for the penny measure was so near the size of the half-pint that the general public would be very much deceived indeed, and they would keep on using them as half pints, until we put a check to it.

1409. (*The Warden of the Standards.*) I suppose that in fact the public were imposed upon as to the quantity?—Yes, very much indeed; those penny measures were so much like the half pint size that it wanted a practised eye to detect them, and of course no customer could do it; it was only the inspector who had the power. But to meet their requirements, we have sanctioned one thing, which is, that they may have certain marks inside the imperial measure for a pennyworth, and a halfpennyworth, which meets the point. There is now no difficulty in that at all, and we have done away with those fraudulent measures.

1410. (*Chairman.*) What is your method of stamping measures for liquids?—I stamp them with a die; all pewter measures are stamped with a die with the county arms; the same as the weights.

1411. And with a crown, also, I suppose?—No, we have the arms of the county, and simply [3 M.]; 3 is the number of the district, and M. is my initial. I believe the county arms is the general rule.

1412. As to measures of capacity for dry goods which you test and stamp, did you not say that they were made of both wood and iron?—Yes.

1413. What are the ordinary denominations tested by you, and for what purposes are they intended?—From a bushel down to a gallon for dry goods; and of the liquid measures, the majority are from a quart downwards, but I stamp several, half gallon, one gallon, two gallons, three gallons, four gallons, and five gallons; those are for distillers, and such persons.

1414. What is the process by which you test them?—Liquid measures are all tested by filling the standard with water and then placing it in the vessel.

1415. Do you try them by cubic measures?—We have a rule, but I never like to risk it myself.

1416. As to measures of length, do you test and stamp many such?—I stamp a great many yard measures. Those for counters in shops are made of brass the length of the yard; and I also stamp wooden measures.

1417. Do you know any reason why measures of length other than the yard, used for trade purposes of buying and selling, should not be tested and stamped; for instance, the subdivisions of the yard used in the sale of silk, woollen, cotton goods, &c., and the foot and its multiples and subdivisions used in the sale of various articles, such as timber, sheet glass, gutta percha, and india-rubber, &c.?—It is the custom of the makers generally to subdivide their yard measures into inches, and that they do at the pleasure of their customers.

1418. But where they have foot measures, for instance?—We have no standard for them; there is only the yard measure.

1419. Do you know any reason why they should not have a standard?—There is no reason why that should not be done.

1420. As to the inspection of weights and measures, have you any general or particular instructions for the discharge of this duty?—Not any.

1421. Have you any regular system laid down for the districts that you visit?—I am simply guided by experience in inspecting.

1422. What is the extent of your district of inspection?—I can give you the names of the parishes. There is St. Andrew, Holborn; St. George the Martyr; St. Giles in the Fields; St. George, Bloomsbury; Hampstead, Chelsea, Hammersmith, Fulham, Kensington, Willesden, Edgware, Great and Little Stanmore, Hendon, Kingsbury, and the Liberty of the Rolls.

1423. Is St. Martin's in your district?—No, that is in the City of Westminster.

1424. Then you stop at the confines of the City of Westminster?—Yes. The parishes of St. Pancras, St. Marylebone, and Paddington are within my district, but as they have a local or annoyance jury, as it is commonly called, I do not interfere with them. There is a section in the Act of Parliament which is open to some doubt, and wants amending. It is section 25 of the 5th and 6th of William the Fourth, and it says:—"Nothing herein contained shall prevent "inspectors appointed by county justices or grand "juries from coming to any place within the limits of "such other jurisdiction or authority as aforesaid, "and there inspecting and stamping the weights and "measures of any person residing within the district "for which such inspectors may have been ap-"pointed." I would call the attention of the Commission to that section, as it is a very doubtful one

indeed. I should mention that all those annoyance juries have simply power to go out in the daytime. Now the most important time of all to the public, and to the poor especially, is the night, for the greatest frauds are committed then. They have no power of inspecting at night in those parishes. I have constant complaints from individuals, wishing that the system was altered, and that they were under my supervision.

1425. But you doubt whether you have any legal right to go into them?—In that clause there is a certain right, but it has never been asserted; the clause is so very ambiguous.

1426. (*The Warden of the Standards.*) That clause draws a distinction, does it not, between the county inspectors and the borough inspectors?—Yes.

1427. It does not appear to go further than that. The cases that you mention are parishes where they have private and local Acts of their own?—Yes, that is provided for in the last section; section 45, and those two sections clash, and rather oppose one another. It is a curious circumstance, that in the parish of St. Mary, Islington, which is under the county inspector, they have a jury that are appointed, I suppose, by the vestry, to inspect weights and measures, and there the county inspector inspects also. I was afraid to take upon myself to go into those large parishes, as they might oppose me. I expect that there must have been some arrangement made some years ago.

1428. Are there any other parts of your district where there are annoyance juries?—Yes; a part of the Duchy of Lancaster, for instance, is in my district; a portion of the Strand, the Savoy, St. Clement Danes, and a portion of St. Mary-le-Strand, they are within my district, but the Duchy of Lancaster appoints a jury, and therefore I do not interfere on the same ground as in the three parishes which I mentioned before, namely, Paddington, St. Marylebone, and St. Pancras. It is a very questionable way in which the work is done. I may state one thing that I know of in the parish of Paddington. I saw a number of weights stamped by the beadle of the parish without being put into the scale. They were done on the doorstep at the Vestry Hall, Paddington. If that is the system carried on there, I do not know what they do with the inspection. Nobody would be safe under such a system. I know that is done repeatedly, but I saw it once myself.

1429. Do you think it would be a good regulation if all such local annoyance juries or court leets should be abolished?—The sooner they are done away with the better for the public good, and I am sure that those gentlemen who have to attend on them would be very glad to get rid of the duty. It is irksome to them, and they are liable to be fined for non-attendance. Many are persons not at all acquainted with the business; many of them are perfect strangers to it, and hardly ever used a weight or a scale; they are not practical men, and they are changed every year.

1430. In fact they are obliged to serve, are they not, under a penalty of 10*l.*?—10*l.* or 20*l.*; I know it is 10*l.*, if not more.

1431. (*Chairman.*) Can you inform us what is the total population and the number of shops and other places subject to inspection in your district?—I cannot.

1432. Do you inspect many weights and measures and balances in open places or places other than shops?—I have no markets in my district, but there are a number of stalls in the streets, especially in what I may call cutting neighbourhoods. There is one side of Leather Lane, for instance, which is almost a market for the poor; in fact, you can hardly get along the street on a Saturday night. There is also one in Seven dials, and in the neighbourhood of Prince's Road, Notting Hill, and Shepherd's Bush Market, and there are very sharp practitioners there.

1433. Have you any county market; at Stanmore, for instance?—No, there is no market there.

1434. Have you met with any metric weights and measures during your inspection?—Not any.

1435. Or with any weights and measures other than those denominations for which there are official standards or any so-called local or customary weights and measures?—Yes, I have; I have met with a 3 lb. weight and a 5 lb. weight, and have taken them away.

1436. Do you seize them when you see them?—Yes, I seize them, and they are convicted. I have also seized a quarter gill. I seized three of them the other day, and there is no standard to test them by.

1437. (*The Warden of the Standards.*) Are you aware that in some parts of the country a quarter gill is very commonly used, and that the inspectors stamp them?—I should not venture to stamp one, myself. I was not aware that they were stamped. I take it that they are illegal, and the justices are of the same opinion; unless there is a standard to test them by, they cannot be reckoned legal.

1438. (*Chairman.*) You cannot stamp them for want of the means of ascertaining that they are correct?—I cannot do so; if I did it once, I must do so in other cases. For instance, a person might bring me a pint and a half measure, and demand its being stamped by me putting the pint and a half together, which I cannot do. If you take the pint and a half and a gill for a measure, it would be so large that it would very well suit them for a quart.

1439. Do you experience much difficulty or annoyance in the exercise of your duties of inspection?—Very little indeed.

1440. I suppose you have rather a rough neighbourhood to deal with in the Seven Dials?—Yes, it requires management, but I find that with good temper I get better over it.

1441. What is your practice with regard to the errors of weights, measures, and balances that you seize as defective, or make the subject of informations?—Perhaps I may be allowed to give a few instances from my own book. It is not an uncommon case to find a coal weighing machine in the retail coal trade with a draught of 1½lbs. to 3lbs. against the purchaser in a 56lb. weight, but then they may weigh 14lbs. by the same balance, so that the smaller the customer the greater the evil. I may mention that I have a case, which will be heard next Tuesday, of a man with a balance 2lbs. 11ozs. against the purchaser; he would sell 56lbs., 28lbs., or 14lbs. by the same machine; the balance would be the same; the balance was unjust, that is to say, one scale was heavier than the other. The balance is a most important thing, because a man might have 20 weights, and there might be only one defective, and it is a chance if he would use that one continually; but if his balance, supposing he is a provision dealer, is half an ounce defective, it tells upon everything he sells, and the smaller the quantity the greater the evil.

1442. (*The Warden of the Standards.*) In the case of the coal dealer it was not a balance with a scale, I suppose?—No; simply a large scoop for putting in coals; and the other only a little platform for the weights. I might mention that I found as bad a case as ever could be met with, that of a man selling coals in the street 11 lbs. short, that is to say with a 4 lb. weight and a 7 lb. weight hung under the coal scoop. The penalty is 5*l.*, but the justices fined him only 10s.

1443. (*Chairman.*) Did not the customers discover it?—No. That is a very rare occurrence. I have found a 7 lb. or a 4 lb. frequently, or a 2 lb. weight hooked on the coal scoop. They have generally a very careless style of weighing, and they deceive the eye by weighing very quickly, and the customer takes what he can get. It is a common thing with provision dealers, such as bakers, to find an unjust balance an ounce against the purchaser, frequently caused by a penny piece underneath the scale, or with

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a hook and pieces of tin; those are very serious cases. And with regard to weights, I reckon that if a 1 lb. weight belonging to a provision dealer is about $1\frac{1}{2}$ drachms short, it is a weight that ought to be seized. I should not take it for half a drachm, I think that would be too nice a great deal. The law of course requires strict Standard weight, but it is impossible to keep them up to it; there must be something allowed for wear and tear. With liquid measures, such as publicans measures, if we found a quart measure one ounce deficient, I should seize it, and others in proportion. I have a case in my book of seven quart measures that are very bad indeed; two were each 2 ozs. short, another $1\frac{3}{4}$ oz. short, two $1\frac{1}{2}$ oz., and two $1\frac{1}{4}$ oz. short. Those I consider bad measures. In measuring pots of the three Standard sizes, the quart, pint, and half pint, which publicans keep, an error of an ounce in a quart would be very bad. It would be much worse than many other measures, because such a measure is used 20 or 100 times to one of the others, and the publican must have very great benefit indeed arising from it; we are therefore always sharp over such. In ordinary measures we must make some little allowance for the rough usage of their customers, especially in bad neighbourhoods.

1444. Have you ever found much difficulty arising from the provision of the law, by which you are empowered only to inform against persons using or possessing false or defective balances, and not to seize such in shops?—There is no occasion to seize them. I simply take a note of the inaccuracy, and take away any foreign substance that they may have placed under the scale, as a proof in evidence before the justices, because a scale plate, for instance, of a cheesemonger's or butterman's would be moist, and I could not show it in the same state as I found it, and the evidence would break down.

1445. But has no inconvenience arisen from their going on with a defective balance in the interval between your seeking for a conviction; if, for instance, it is a foreign substance you can take it away, but if the construction of the balance enables them to cheat they may go on using it till they are convicted?—The knowledge that they would be summoned for it would make them careful to have it rectified.

1446. Do you think that the law in this respect should be altered, and that you should be empowered to seize at any rate false balances, that is to say, where there is intent fraud in connexion with them, if not balances which are merely accidentally or temporarily defective?—I think there is no necessity for seizing beams and scales or weighing machines.

1447. To what extent are the larger weighing machines, and those with special weights showing a much larger weight on the lever principle, including steelyards, subject to your inspection?—I only try such with the largest Standard I have, the 56 lbs., and test it with various other Standards. I might put a 2 lb. weight on, in addition to the 56 lbs., and vary it in that way, so as to see whether the index was correct.

1448. Have you any reason to suppose that a scale which did not show an error with a 56 lbs. weight might be defective when you came to weigh very large quantities?—It is possible, but still we have no legal means of testing. We might perhaps take half a dozen half cwts. which we have tried with our Standard.

1449. Do you ever interfere with balances with balance balls?—I have never summoned a person for using a balance ball, but I think a balance ball is completely unnecessary. It is open to very great objection, and the greatest objection of all is that they do not use it for the purpose for which it is intended. I find that the beams of scales that have balance balls are kept just as inaccurately as if that appendage was not there, and they do not use them as they ought to.

1450. Is it possible for a tradesman to adjust his balance for himself without a balance ball?—Yes; quite possible.

1451. How can it be done?—The proper mode of adjusting is to have lead or some soft metal run into the small scale which they can cut away.

1452. Does not that make it equally open to fraud?—No; I think not. They cannot be altered so easily as by a balance ball; it would be part and parcel of the machine; it is a common custom to run molten lead into the scale pan and it fixes itself there, and then, when either scale is equally weighted and the beam is balanced, it will rest, and they can very easily rectify it; that is the proper course, I think. I never allow anything moveable about a weighing beam scales or machine. A balance ball is moveable, because it hooks on and off.

1453. (*The Warden of the Standards.*) If a balance ball was fixed so that it could not be removed, but merely be unscrewed for adjustment in that case; do you think it objectionable?—I think so, because they can unscrew it and take out what is in it and alter it to their purpose. It would not be so advantageous to them as a means of fraud as by placing something under the scale, because the other is a so much slower process, whereas this gives them an opportunity of quick handling and moving anything away when the inspector appears; so that it would answer their purpose much better as regards fraud.

1454. But surely a balance ball is a very convenient way of adjustment?—Yes; but they do not use it. I find many defective balances (that is, where one scale is heavier than the other) have those balance balls; so that they do not use them for the purpose for which they are intended. I always recommend them to do away with them, but many do not. I do not summon them for them unless the balance is defective, but when they are summoned, and it is mentioned that there was this balance ball as part of the machine, the justices usually inflict a double penalty in my division.

1455. (*Chairman.*) Have you ever had occasion to interfere with any other balances of peculiar construction, such as those which have special pans for coals?—No.

1456. Do you think it would be an improvement in the law, if the inspectors in Great Britain were empowered and required to detect and inform against all frauds in connexion with weights, measures, and balances, as well as false and defective instruments, for instance, frauds in the method of weighing as distinct from the balance itself, and frauds in making up beforehand and selling goods in parcels of defective weight or measure?—I think, as regards parcels weighed up, the greatest frauds exist with regard to them, and inspectors have no power to correct it at present. I can give an instance which occurred only within this last fortnight. I went to a grocer's to inspect his weights. I found him weighing not with a weight, but with a parcel of sugar in one scale and weighing up his stock from it. Telling him who I was, he was quite confused over it. I asked him what amount it represented, but he did not know; he would not know, in fact. So on asking him to allow me to weigh it, I found that it was three-quarters of an ounce short of half a pound; he was weighing up half pounds of sugar for his customers, making up packets, as is the custom in that trade, and the paper which it was in weighed a quarter of an ounce, so that the customer actually only got 7 oz. for his half pound of sugar. Now, in the case in which those were placed there were upwards of 100 packets, and there would be fully 7 lbs. short in that lot; those are the greatest frauds. With regard to flour, I may instance that I have weighed flour, but I have no authority to do it. I always ask leave just as a matter of curiosity, and I have found quarterns of flour, which are $3\frac{1}{2}$ lbs., frequently 2 ozs. short and even more, and pounds of flour an ounce short.

1457. (*The Warden of the Standards.*) Do you not think it would be a good thing if there was a

regulation by law that in all those cases the weight should be marked on the outside of the parcel, and that the inspectors should be empowered to weigh those parcels, and if they found them defective that they might seize them as defective weights?—I think so, and it would be very beneficial to the public.

1458. Would not such a regulation meet that evil?—It would render the seller much more careful than he is at present; in fact there is no punishment for him at present.

1459. (*Chairman.*) Are you aware that these powers and duties are imposed by law upon the inspectors of weights and measures in Ireland; that is to say, the power of detecting and informing against all frauds in addition to those false weights?—I was not aware of that.

1460. In your duties of inspection and in information laid by you, do you observe a marked distinction between cases of wilful fraud and those where there is no intent to defraud?—I do make a distinction. I am always most particular in mentioning that, and ordinarily the justices inflict heavier penalties where it appears to be a case of wilful fraud. I would here mention that last year they have inflicted rather heavier penalties on persons committing those frauds such as placing things under scales; they have been more severe. It wants a minimum penalty in the Act of Parliament. They are bound to convict in all cases where we can prove the case; but they can, if they like, only fine 1*s*. I think it would be advantageous to put a minimum penalty, because frequently people care nothing at all for a fine of 1*s*.

1461. If a shopkeeper has been convicted of fraud in his balance does it not diminish his custom?—It tells very much against him, but then it is not publicly known, except only by mere chance.

1462. Do you think it expedient to establish a regulation that, in cases where persons are convicted of fraud, or where there is culpable negligence, their names should be publicly advertised?—I think not. I think if they pay the penalty it is quite sufficient, if the penalty is heavy.

1463. But you do not think it necessary for the protection of the public?—I think not. I do not think it would do to publish people, and to have it posted up in their windows.

1464. Supposing it was advertised in the papers?—That would be ruination to many small tradesmen. Things get so misrepresented in the papers.

1465. (*The Warden of the Standards.*) Is not that the practice in the parish of St. Pancras and other parishes where they have the power by their local Acts?—They publish I believe after a certain number of convictions, after the second, I think; but I never give information to any newspaper, though frequently requested by the reporter to do so. The courts are open, and if they choose to take notes of cases they may do so, but I know that tradespeople dread publication in the newspapers a great deal more than anything that the justices do.

1466. Would not that be a great protection to the public against fraud?—It would; for myself I should have nothing to do with the publication.

1467. (*Chairman.*) What is your opinion as to the employment of police officers as inspectors of weights and measures?—I do not think they are suitable for the duty.

1468. Are you aware that these police officers receive no remuneration for their duties in connexion with weights and measures?—I think I have seen so from the returns to Parliament.

1469. Considering the peculiar nature of the existing duties of inspectors of weights and measures that they require practical experience, skill, and accuracy for the proper comparison and verification of weights and measures, and that the inspection necessarily is an office of a particularly obnoxious character; do you think, with your practical experience upon the subject, that as a general rule these duties can be efficiently performed where the inspectors receive no special remuneration for them?—I think specially appointed inspectors of weights and measures are the best persons to carry the whole of the duties into operation both as regards stamping and inspecting.

1470. Have you ever considered whether the practice adopted in France of separating the duties of comparison and stamping weights and measures and the duties of the inspection of weights and measures used for buying and selling, and assigning the separate duties to distinct officers of verification and inspection, the latter being undertaken by the police would be expedient in this country?—I think, as I said in answer to the last question, that it is best in the hands of the inspectors, and for the whole question of weights and measures to be within their control.

1471. The French regulation, I believe, is that the officers for comparing and verifying weights and measures should be engaged in no other employment, and that the districts of verification should be arranged so as to occupy the whole time of every such officer. Do you think that is a good regulation?—I think one person could do it all. I do not think there is enough for a man to do if he has no other occupation but the stamping and verification of weights. I can do all that I have to do, and mine is a considerable district, in the time allotted.

1472. (*Chairman.*) Do you think it would be a public advantage that in all new appointments of public officers for comparing and verifying weights and measures, there should first be an established test examination for the qualification and competency of the person to be appointed?—I think the duties are easily learnt; they would gain sufficient information from their brother officers to carry anything out.

1473. Do you see any reason why such officers should not compare and stamp gas meters as well as other measures of capacity?—I should say no; I should think that is a duty best by itself. I do not think that an officer could do the two duties of weights and measures, and gas meters as well; the trial of gas meters is lengthy; and that of weights and measures is quickly done.

1474. Has your attention been directed to the provisions for adding to the duties of inspectors of weights and measures, the inspection of petroleum, and of adulteration of food?—As to petroleum, I do not think they can do that from what little I have seen of the Act of Parliament. In fact, the Petroleum Act is very badly worded indeed, and with no payment to the inspector for doing the duties; there is no provision whatever for finding the apparatus, and in that respect the Act is a dead letter at present. I have not done anything as inspector of weights and measures to inspect petroleum, though I am authorized to be so, and I am empowered to do so, but I am not compelled to do so. As to the adulteration of food, an inspector of weights and measures might learn that, certainly, but must acquire a knowledge of chemistry.

1475. Do you think that the practice adopted in France of issuing general, specific, and detailed instructions from a Government department to inspectors of weights and measures for the discharge of their duties, in order to ensure uniformity of action, and due compliance with the requirements of law, would tend to the public advantage if authorized and adopted in this country?—I think a general code of rules would be advantageous, but there are many circumstances which occur where it must depend very much upon the discretion of the inspector, but a general code of rules would be advantageous.

1476. What is your opinion of the expediency of appointing one or two government officers in subordination to the Board of Trade to supervise from time to time under established regulations, the standards, apparatus, and operations of the local inspectors?—I scarcely know how to answer that question. There is nobody that supervises our work at all in any measure. The only persons that we are under the control of are the justices, who would call us to account if we neglected our duty.

1477. Do you see any objection to a regulation

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being established by law under which the inspectors should be required to furnish periodically to the Board of Trade such information connected with the discharge of their duties as should be called for in a separate specified form, and of a similar character to that called for by the Commission for the year 1866?—That was with regard to the number of standards they kept. I do not see the least objection; I think it would be readily done, and very easily done.

1478. Have you any further information which you wish to give the Commission upon any of the subjects to which your attention has been drawn?—There is one clause in the Act of Parliament which I would call attention to, the 27th section of the 5th and 6th of William the Fourth, as to the liability for weights or measures to be re-stamped, "although the "same be used in any other place than that at which "the same was originally stamped, but shall be con- "sidered as a legal weight or measure throughout "the United Kingdom, unless found to be defective "or unjust." We find a good deal of difficulty on that score. For instance, in Middlesex there are four districts, and all paying the fees into the same office. It is of course simply a matter of receipt of fees there, but if we interfere with other inspectors, it is a very serious matter indeed. I think if a provision was made that all weights and measures should be stamped simply for the county in which they are used, it would be very much better. We know not whether the stamp of Leicestershire, though it might be used in Middlesex, is a just one or not. We could not recognize it from the trade mark; makers put a few trade marks upon those things which might pass for legally stamped measures. They might be stamped distinctly with the county arms, and kept simply for the county; all weights and measures in a county should bear the county stamp.

1479. If V.R. and the Crown were put on the weight, which I believe is done in the City of London, would not that obviate the difficulty which you see?—I think it would be best to confine it to the county, so that when a person changes from county to county, it should be known and recognized by the inspectors for the county.

1480. (*The Warden of the Standards.*) Are you aware of the reason for introducing that clause in the Act of Parliament?—No.

1481. Under the previous Act there was a decision of the law officers given upon a question submitted to them, that a weight or measure stamped in one district of inspection was not legal if used in any other district of inspection, and it was to obviate that which became a serious evil that this clause was introduced. Would it be advisable, do you think, to adopt a similar regulation to what they have in France, that each district of inspection should have a stamp bearing a specified number supplied to it by the Government, so that the stamp might be recognized at once as a legal stamp, and the number would show the district of inspection where it was stamped; and do not you think that that would meet the difficulty which you speak of?—With regard to our own county, it is met by the different numbers of the inspectors on the stamp.

1482. You can recognize the stamp in your own county, but you cannot recognize the stamp in another county?—No, we do not know its authenticity.

1483. All that you require is that the stamp should be of such a character that you could at once recognize its authenticity?—Yes, that is what I wish to be done. There is another matter which I would wish to mention to the Commission, and that is with regard to the provision for the inspectors. As I have told you, we have to find everything, and I think we ought to be furnished with proper and secure stations, and all the necessary apparatus for carrying on the duties. We have to find offices ourselves, and, of course, we wish to be as economical as possible, and I can assure you that in some cases the stations are very indifferent sort of places.

1484. Do not you think that that is one of the cases where it would be beneficial to the existing system if a Government officer were appointed to supervise the apparatus and the standards, and the places where the inspectors exercised their duties, to see that their instruments are in proper order and properly dealt with?—It would be so, most decidedly. I may also say, with regard to the fines, that they do not exceed 5*l.*; but the justices like to take an easy view of many of those small cases, and very often the fine is only nominal.

1485. Has not the party convicted to pay the costs?—In some divisions. In the Kensington division the costs are 6*s.* 6*d.* in each case, which the clerk to the justices receives. In the Holborn division there are no costs charged; and it varies in different districts of Middlesex. Some divisions have no costs; others have but small costs, and others have higher costs. Perhaps I may be allowed to mention another thing. We find a difficulty with persons delivering coals. There is very great fraud in that, and we have no check upon it. The Coal Act does not come under the inspectors of weights and measures, and neither does the weighing of bread. If such cases are taken up it must be in the character of a common informer. I cannot try the weights and scales of a person delivering coals, say from a ton and under. I cannot do it in the street; I have no power to do it, and that is necessary if fraud is to be detected. That is a difficulty also about distilleries. I went to a large distillery, and after a very long parleying with the people, at last they admitted me to test their measures, and if it could be inserted in the Act to give us authority to go there, and also to railway stations (because there goods are weighed for carriage), it would be very useful, and that is a thing that we want very much.

1486. Are not all those cases comprehended in the present law?—No, I think not. It says, "or place whatsoever," but it would be a safeguard to us to give us full powers to act. It is quite necessary that we should have a chance of going there sometimes. I would also mention, in order to show how the work of this county is done, that for the last three years the receipts from various sources were 1,900*l.*, and the payments, including salaries and all the expenses of repairs for standards, and so forth, were 1,936*l.*; so that in three years it has cost the county only 36*l.* for their four inspectors.

1487. What were the receipts composed of?—The fines and the fees for stamping. I only mention that because we certainly think ourselves a little under paid in the matter. I would also mention, with reference to the insertion of a pension clause in any bill that is introduced, there is no provision at present for inspectors' pensions. I had the honour to send in a petition, and really, under the present state of things, we have no means of making any provision for ourselves. There is not much to be obtained out of the office; it is an important duty, and it requires to be carried out with strictness, and I think if anything could be done in the Act of Parliament to assist inspectors in that way they would be very thankful.

The witness withdrew.

Adjourned to Wednesday next, 7th July, at 1.30 p.m.

Wednesday, 7th July 1869

PRESENT:

LORD COLCHESTER IN THE CHAIR.

SIR J. G. S. LEFEVRE, K.C.B.
THE ASTRONOMER ROYAL.
LIEUT.-GENERAL E. SABINE, P.R.S.
THE MASTER OF THE MINT.
PROFESSOR W. H. MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

MR. SAMUEL ROBINSON SHORT recalled. *Mr. S.R. Short.*

Further examined. 7 July 1869.

1488. (*Chairman.*) Have you large dealings in balances and weighing machines?—Yes, very large.

1489. Are they constructed by you?—Yes.

1490. Do you furnish balances for the inspectors of weights and measures?—Yes.

1491. What is the usual cost of a set of balances for inspectors?—The ordinary cost of a set of balances for testing weights is about 15*l.* or 16*l.*, sometimes there are more expensive sets; three pairs constitute a set.

1492. What makes them occasionally more expensive; is it the material, or the greater amount of work required in their construction?—Sometimes we finish them more highly, and pay greater attention to their appearance; this depends upon whether they are for outdoor or indoor use. Those for indoor use are generally better than the outdoor; they are more expensive, and they remain as fixtures. The scales which the outdoor inspectors use are obliged to be very simple in their construction, whilst those which are fixed in the office may be more elaborate.

1493. Are they generally sent back to you for adjustment, and how often?—Very frequently; it depends upon the place. We have them from the city, and from Manchester and Liverpool, about four times a year. We have a contract with the city of London to keep them always in order, and whenever there is any defect, we make it right, and the same with the county of Surrey. But the generality of inspectors are very backward in having their scales and weights put in order. I have here a letter relating to them from Lerwick in Zetland. "In "reference to the beams and scales, they came into "use a considerable time after the weights and "measures were brought into this county, and are "in as good condition now as when they were first "received, they having been well kept, and only "required to be used occasionally. The justices "from these circumstances, and taking into considera-"tion the heavy expense of transmitting to and from "London, have resolved not to send the beams and "scales at present," These beams and scales had been in use probably 40 years.

1494. Have they had no means whatever of being adjusted?—None whatever.

1495. Do you suppose that the inspection is very imperfect in that district?—I cannot say, at all events the beams and scales have not come for adjustment.

1496. Have they been in the habit of obtaining convictions of weights tested by those balances?—I cannot say; I am not aware of it myself.

1497. If they had not come from any other place for that length of time, you would probably have concluded that the balances had got out of order?—Yes.

1498. And there is every reason to suppose that persons in Zetland are and have been made answerable for the agreement of their weights when tested by a set of balances which have not been adjusted for 40 years?—Yes.

1499. Those I suppose are exceptional cases?—Quite so; that is a most remarkable case.

1500. How often are inspectors' balances generally sent to you for adjustment?—We have them, as I stated, from Manchester and Liverpool about four times a year, and it is the custom for inspectors, when they send standard weights to be re-verified at the end of five years, to send up the balances also, whenever we have any communication with them on the subject of weights, we always recommend them to have the balances done.

1501. What is the cost of adjustment?—That depends entirely upon the state in which they are; it perhaps might cost as little as 2*l.* to make the whole set fair, or it might cost as much as 3*l.* or 4*l.*, say from 2*l.* to 4*l.*, depending on their condition.

1502. Can you inform us what is the usual sensibility of those balances, both after and before adjustment?—We seldom pay any attention to them in that respect when they come in to be repaired, as we set to work at once and make them right. When they leave us, the 56 lbs. beam will act well with five grains, and the small ones in a similar proportion, the smallest balance will usually turn with a grain, and a middle sized one will generally do the same.

1503. Do you consider that the balances furnished to inspectors are generally sufficient for the due discharge of their duties?—Yes, quite so; all that is necessary.

1504. Do you think that no improvement in their construction is required?—I could not suggest any improvement; they have been tested for so many years.

1505. (*The Warden of the Standards.*) Will a balance to weigh 56 lbs., that will show the weight within five grains, keep that sensibility?—For a certain length of time.

1506. Until the usual time when it is sent for adjustment?—No, it would not do that, because as the knife edge is thickened by wear, the sensibility of the balance becomes less.

1507. What do you think is the usual sensibility after it has been some time in wear before adjustment?—I should imagine that one which originally turned with five grains with a 56 lbs. in the pan, would take 20 grains to make any impression on it when sent in to be repaired, and I have seen some of them in such bad order that I should think it would take 50 grains to move the beam, but such a case is exceptional.

1508. Are you aware that in France the out-door verifiers use steelyards to try the weights, that is to say, the old Roman balance?—I was not aware of it, but that would not do at all, we must have a lever with two equal arms if we are going to weigh correctly.

1509. You think it would never do for an inspector to use steelyards in this country?—No, not for any nicety. Speaking of the steelyards, we say that it is only a matter of guess; steelyards are used generally for weighing hay and straw, and those rough things in the country, and it is a general understanding among country people when they weigh by steelyard, "Oh, it will come within 1 lb;" that is the ordinary feeling on that subject. I have heard of that irrespective of my business.

1510. (*Sir J. S. Lefevre.*) What causes the balances to lose their sensibility?—They lose it by mere fair wear and tear. The beams that inspectors use are like all other beams; they work upon three knife edges; one in the centre and one at each end, making three in all; the three knife edges are prepared in a certain way to make them in good order,

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but by the continual friction of the scales going up and down, the knife edges get out of order; and not only that, the position of the line of gravity is also altered; the centre one wears upwards and the end knife edges wear downwards; therefore, to use a trade expression, it lowers the ends of the beam, and in that way makes it less sensible.

1511. (*The Astronomer Royal.*) How many different sizes of balances are supplied to the inspectors?—The largest balance tests the 56 lbs., 28 lbs., and 14 lbs. weight. The middle size tests the 7 lbs., 4 lbs., 2 lbs., and 1 lb.; and the third size tests the smaller weights, the 8 ozs., 4 ozs., 2 ozs., 1 oz., 1 drachm, and half drachm, but it is seldom that any weight below a quarter of an ounce is tested, because the 2 drachms, 1 drachm, and half drachm standard weights are very rarely used by inspectors, unless for ascertaining the deficiency of others.

1512. I suppose that the amount which would turn a balance would be in some measure proportional to the weight which it has to carry?—Exactly. You can imagine that a beam which is accustomed to weigh a very great many weights of 56 lbs. each, will soon get out of order in consequence of the friction and wear and tear; when I say soon, 12 months' wear would make a considerable difference in it.

1513. When a 56 lbs. balance leaves your hands it will turn with a certain number of grains?—It will indicate five grains fairly.

1514. When a 7 lbs. balance leaves your hands with what number of grains will it turn?—It will indicate fairly two grains when loaded with 7 lbs., and with a small weight, say 1 lb., I should say it would turn with a grain. The small pair which we use for eight ounces and under, will fairly indicate one grain when it is in good order.

1515. You spoke of steelyards as used for hay, straw, and the like; I presume they are used for butchers' meat also?—Yes, and for all rough weighings, as they are termed.

1516. I suppose if 10 lbs. of butchers' meat is weighed, there is a liability of considerable error according to the management of the steelyard?—Yes, because the common steelyards are generally made in such a way that they are upon the principle of what is termed accelerating beams; in other words, they are tumblers, and by setting it in one direction or the other, you may make the weight appear either more or less. A person who is accustomed to the use of them may weigh tolerably correctly with them, or he may make the article either half a pound more or less without any difficulty. In using a steelyard, I could give you three different weights of the same thing, and you should watch me and not detect anything wrong.

1517. (*The Warden of the Standards.*) With regard to the question of inspectors of weights upon which you were examined upon the last occasion, you spoke of a weight, probably 100 years' old, as being 12 grains short in the space of five years; what weight was that?—That was a 7 lbs. weight, and that was a weight which we consider had been very fairly kept and very fairly used, and it had been used considerably.

1518. We have had some local standard weights sent up here to which I should be glad to direct your attention; here is a 4 lbs. weight which has not been officially re-verified since 1837, but it appears to have been adjusted by the inspector; will you look at it and tell me what you think of that adjustment (*handing a weight to the witness*)?—It is very like all that they do in this way; I also have brought you up two weights as specimens which very much resemble that; the adjustment is all of a similar character, a sort of botching thing.

1519. Do you think those weights fit to be used as standards?—No, certainly not; I could just pick off a bit of the lead with my nail.

1520. Looking at the condition of those weights, as to the dirt and oxidation upon them, do you think that they are fit to be used as standards?—As far as one of the weights goes it is pretty fair, the other looks rough, but that is for want of use. If it had been much used that roughness would have been rubbed off. In the one case I think it is neglect.

1521. Will you look at the standard yard and tell me what you think of that standard yard?—Looking at this set of standard weights and measures I should should say, irrespective of their use, they have been illused; the whole of them I consider are in a very disgraceful state, as far as regards their appearance.

1522. (*Chairman*). Have the inspectors' balances, of which we have been speaking, face plates, or have they back shoulders?—The inspectors' balances do not have face plates generally, unless it is those that are used in the offices where they are fixed.

1523. You do not consider that it is necessary that they should have them?—It would not do for balances that are carried about, because the points of the knife edge that rest against the face plates would be broken and crumbled away. It would not answer the purpose at all, nor stand the wear and tear.

1524. As to commercial balances that are used with weights in the pans generally for buying and selling, are there many descriptions of such?—Almost every different trade and profession uses balances different in some way or other.

1525. In balances required for weighing particular commodities, is there much difference in their construction and cost, according to whether they are used in large shops in more wealthy neighbourhoods or by small traders in poor neighbourhoods?—Yes, very great difference.

1526. What is that difference?—When we make a beam and scales, or balance, as you call it, for a wealthy neighbourhood, it will sometimes probably cost as much as 5*l.*, because they want it to carry a certain appearance, and if we were to go into a low neighbourhood, an article that would serve a similar purpose would cost 30*s.*

1527. Where there is more money spent upon them, are they more accurate?—Yes, they are better certainly.

1528. But you do not find a pair of scales which cost 16*s.*, as accurate as one that cost 16*l.*?—No, it ought not to be; they are generally made by different workmen.

1529. Do they differ in accuracy according to the workmanship?—The probability is that a 16*s.* one would answer the purpose, and be quite good enough for its requirements—there is no doubt of that in many instances, because when you are weighing things of a value not exceeding 2*d.* or 3*d.* a pound, you do not want any extreme accuracy; but if you are going to weigh silver, or gold, or any expensive drugs, where a grain is an object, you must have something very far superior.

1530. But the sort of traders who buy cheap balances do not find it necessary to use very accurate balances?—No, I think that they are near enough for the purposes, if they would see that they balance properly.

1531. Do you know any instances of tradesmen being convicted in consequence of their having cheap balances of faulty construction?—I cannot say that I know of their being convicted, but I know that many balances are made so that it is not possible to weigh correctly with them, because in the first place as to some of the weighing machines, every part of them is of cast iron, instead of the beam being wrought iron and their centres being steel. The whole is cast iron, and, therefore, it is filed up to an edge, but as soon as they come into use the soft cast iron will not wear.

1532. Those sort of balances are sold cheaper than good ones, are they not?—Yes.

1533. Do you think that they are bought a great deal by poor tradesmen?—I think that the people who buy them are generally deceived, because externally they look tolerably well; they go to the brokers and those cheap places. They come to me and ask me the price of a balance, but after I say 25*s.*, they say, "Oh, we cannot pay that," and they go and buy one

and give about 8*s.* or 9*s.* for it. I pay the workmen all that money for simply fitting it up after I have found every part of the material.

1534. Do you think that there are a great many unstamped weighing machines that are very inaccurate?—There are no weighing machines ever stamped.

1535. Do you think that in consequence of their not being stamped there are many inferior ones made for use?—No, it is not for that reason; there are no means of testing weighing machines in the way weights and measures are tested.

1536. Can you give the Commission any information as to the balance ball question, as to whether any balances are now constructed and sold with an adjusting ball that cannot be tampered with by a tradesman?—We still continue to sell balances with the ball, but in consequence of the excitement that prevails about it, we now fix the screw part with a pin. We drill a hole and pass a pin through it, and that is driven in tight, so that if they ever want to take it out, it can be easily punched out, so as to rectify the balance for a certain amount of wear and tear. But the pin cannot be removed at a short notice; it would occupy some considerable time to do it.

1537. Could the shopkeeper do it himself, or must he get some one to do it?—If he was at all mechanical, he could do it himself. The object of that arrangement is that formerly if the shopkeeper knew or suspected that the inspector was coming, he would immediately unscrew the ball and rectify his balance before the inspector could come into his shop, but by the new plan it would be impossible for him to do that. There is a great misapprehension about those balance balls. They are the best things that can possibly be for all honest men; but if a man is inclined to commit fraud, he can do it with the balance ball, or without.

1538. You know that a legal decision was given against their use?—Yes, and a very foolish one, I consider.

1539. Do you think that the reversal of that decision would be a great benefit?—I do indeed.

1540. You do not consider that the Act of Parliament would require alteration, but that it is only the decision that people complain of?—I think it is the decision only. In the city of London, for many years balance balls have been recommended by the magistrates, because people were found, who, when their scales varied, placed loose pieces of wire and little bits of lead or such things upon them, and the inspector said, "What is all this? I cannot "allow this loose balance." And they said, "We "are obliged to do it to rectify the scales." Then the inspector said, "You ought to have one of those "screw balance balls, and then you can regulate them "every day with a little shot that would look more "respectable than those loose pieces; they are not "properly fixed, and might fall off by accident." And the magistrates came to the decision that it was necessary to have those balance balls, and then people could keep their scales correct. I think it was Alderman Copeland, who was rather a severe man, that said, "Mind, I allow you the liberty of "this balance ball, but if our inspector finds that "your scales are out of order now that you have "got the means of adjusting them in your own "hands, I shall give you the full penalty."

1541. That was what took place in the city of London, but the decision that I refer to was in the Court of Queen's Bench?—Yes; and from what I heard of it, the inspector acted very unjustly when he made that seizure. It was from one of the most respectable tradesmen in a country town. He had three or four good pairs of scales, all with those balance balls attached. The first thing the inspector did when he went into the shop was this: he unscrewed the balance ball, and poured out all the shot; and then he said, "Your scales are all incorrect." "Well," said the tradesman, "they were correct "when you came into the place."

1542. Was that at Tunbridge Wells?—Yes. This is as it was told to me. He said, "You see you can "alter them to make them as you please, and there-"fore I shall seize them." I consider that is a very unfair way of doing things; the inspector ought to take them as he found them.

1543. Do you remember the name of the man?—I do not; the newspapers were full of it at the time, and I had also some little private information connected with it.

1544. Do you contract to adjust and keep tradesmen's balances in proper order?—Yes.

1545. Are such balances generally kept in fair order by the tradesmen themselves?—Yes, we generally find that they are anxious to keep them in order.

1546. How often ought tradesmen's balances to be adjusted?—We attend periodically. Once a month is the earliest of our attendances, and we say, "If "you find them out of balance, send to us, and we "will send a man down to look at them."

1547. What is the cost of adjustment?—That depends upon the trade entirely, and upon the number of scales they have.

1548. And the number of times it is done?—Yes. In the case of some large establishments we send a couple of men down, and they are there two or three days.

1549. I suppose that cheesemongers' or butchers' scales get out of order more often than others?—Yes, butchers very frequently have wooden boards to the scales, and they weigh salt meat, and what with the juice of the meat and the salt, if the scales are right in the morning, by 1 o'clock, when their business is pretty well over, there would be as much as half an ounce or three-quarters of an ounce difference, unless they keep watch. That is one of the reasons why balance balls are recommended.

1550. Have you considered whether it would be expedient to require that all commercial balances and weighing machines should be tested and stamped before being sold and used?—I do not believe in stamping balances or weighing machines; it would never do.

1551. What are the practical objections which you see to it?—If a balance is correct to-day, there is a possibility of its being wrong to-morrow, and therefore it would be a folly to stamp it.

1552. It would be a warranty to the tradesman, would it not, that he did not buy an incorrect balance?—Yes; but they might be thrown off the counter and thrown down, then they would be incorrect.

1553. It might be no protection to the customer, but to the tradesman on buying a balance it would be a protection to him to know that he would not by accident be buying a faulty one?—I apprehend that it would be very little protection, and that no good would arise from it. I should object to it myself.

1554. You would object to its being required by law?—I think it would be a very troublesome thing, and would answer no good end.

1555. Are you aware that the principle is already established with regard to gas meters?—Yes; but that is a very different thing altogether. A gas meter is more of a measure.

1556. It is not so liable to injury?—No. A weight or a measure once stamped cannot alter very much in a short space of time, but one of those weighing machines or an ordinary balance will sometimes get a little damaged; that will make it incorrect, and then the stamping will be of no avail. You would want to go and get it stamped every week, and even that would not be sufficient; it would be a trouble for nothing.

1557. You were saying that cheap balances were occasionally sold which were faulty, that would be impossible, would it not, if they were required to be stamped?—Yes, quite so.

1558. A tradesman would know, if he bought a stamped balance, that it was not one of those balances which you have been describing as faulty?—But it

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would never answer; and, in my opinion, it would be an act of folly to introduce it

1559. As to steelyards and the large weighing machines used with special weights adapted to them, do you deal in them?—Yes.

1560. And do you construct them?—Yes.

1561. I suppose that you are equally opposed to the proposal to test and stamp all such machines, are you not?—Yes, the stamping f any kind of balance will not do.

1562. You are aware that under the French metric system all special weights that are so used must be metric weights of legal denominations to which each machine should be adjusted; do you think that a similar regulation could be introduced into this country?—I think it might be very well if all counterpoises for lever weighing machines were all of a particular weight. I think that is quite right.

1563. Have you ever heard of instances of such special weights having been used in this country as ordinary commercial weights?—No; I have never heard of that. In the ordinary lever weighing machines, or platform machines, as they are called, the hundredweight counterpoise is about a pound avoirdupois, more or less, and there is no real reason why it should not be the exact pound.

1564. What is the usual practice in adjusting steelyards or similar lever weighing machines—is the weight itself or the length of the lever altered?—We generally alter the levers to the weights; there is a large firm that we make weighing machines for, the Thames Iron Works at Blackwall, and in consequence of all their weights of this kind being different, they said, "We should like the whole of "these weights throughout our establishment to be "of one uniform weight, so that if the weights get "changed from one machine to another there could "be nothing wrong." The result was that we adopted a standard for them, and we keep expressly to that, and have done so for years. Therefore, the whole of their weights, whether the machines are large or small, are all uniform, and they have a very great many of them. I should think they have 30 or 40 large weighing machines, and of course as many sets of weights, and thus if they take a 2 cwts. from one part of the establishment to the other it answers for every weighing machine, unless it gets a little bit worn.

1565. (*The Warden of the Standards.*) I have had some correspondence with you about the machines for weighing coals. One inspector objected to coal weighing machines with scoops; does he still object to them?—He does, and consequently we have lately had four other weighing machines to make with equal balances, and to make counterpoise weights for the scoops.

1566. Is not the principle of such a weighing machine exactly the same as that of an ordinary balance with a porcelain plate?—Yes, exactly the same, only it is of a rougher material and made for the purpose, but the principle is exactly the same.

1567. The machine has a moveable pan, has it not?—Yes.

1568. Must that pan necessarily be moveable?—Yes, it must be moveable—else they cannot use the balance. The pan, or tub as they call it, is filled with coals, and then two men take it up from the machine and empty it into the sack. If it was fixed to the machine, they could not use it.

1659. If it moved upon a pivot or axle, would not that be sufficient?—There are two sorts; one moving on an axle, which is a weighing machine used only by retailers; the other, with a moveable tub, is used at wharves and such places, and it is more convenient than the first for emptying into sacks. For instance, a sack is 3 feet 6 inches high, and they have to fill it with three of those measures, or tubs as they are called, in other words, three bushels. The first measure only partially fills the sack, the second fills it two-thirds, and the third fills it up to the top; they then tie the sack, and the man takes it on his back, and away he goes.

1570. Are they obliged to take off the tub each time; Yes, every time; they must do it.

1571. Have you heard of any inspector in any other district who objects to the use of these coal-weighing machines?—No other; we have had conversations with many other inspectors and stated this this to them, and explained the matter, and some of them have said, "We think the objection is very "foolish; we should never insist upon such a thing; "we think the man has taken a wrong view of it "altogether."

1572. In this case the inspector puts a different interpretation upon the law from all the other inspectors?—Yes, quite so. It has never to my knowledge been attempted before by anybody else in any part of England, and the parties that are now objected to are highly respectable men, and have been using those machines for many years; last week I had three such weighing machines to repair for a firm, and to my certain knowledge they have been using those machines ever since the weighing of coal was first directed by the Act of 1835.

1573. You have had a great deal of experience, have you not, as to the mode in which inspectors perform their duties, as they have frequently applied to you for advice as to the construction of the law under which they act?—Yes, they very often ask us questions.

1574. Does it appear to you that any difficulties of the kind to which you have just been referring might be be met by official instructions being given to the inspector as to the mode in which he should perform his duties according to law?—I think it would be very necessary for a course of operations to be laid out for such men in order that they should not exceed their duties.

1575. And such a regulation would prevent such a difficulty as has now arisen where one inspector puts his own interpretation on the law, and all the others put a different interpretation?—Yes, and I think that such instructions would be very desirable.

1576. (*The Astronomer Royal.*) When the balances of tradesmen come to you for repair, in what part of the balance is the injury usually found?—It is generally in every part of it, from the continued wear. For instance, if it is a weighing machine like the balance now before me, having a porcelain plate, it contains six knife edges up above, besides what we term the under works; these series of knife edges give a parallel motion, and when they get worn thick we never pay any attention to any particular part, but simply take the machine to pieces and make it right. We do not take the trouble to examine how it is that the balance is wrong.

1577. (*Chairman.*) Do you supply local standard measures of length, that is to say, standard yards for the use of inspectors?—Yes, the ordinary standard yard that is adopted.

1578. Those local standard yards, if they are employed by the local inspectors, consist, do they not, of a metallic bed and rod?—Yes.

1579. Are they generally made of brass or of gun metal?—Generally of brass, sometimes of gun metal.

1580. What is the relative cost of standard yards of the two metals?—For the ordinary standard yard we should charge something like 3*l.* 3*s.*, including a case; the yard measure in a mahogany case.

1581. If they are made of gun metal, is there any difference in the cost?—Not a material difference.

1582. Have you supplied any iron sub-standard yards for Ireland?—No, never. I have only supplied iron weights.

1583. Do you adjust those local standard yards before re-verification?—Always.

1584. In what condition do you find them before you adjust them?—There is very little alteration in them when they come from the inspector, except that they are apt to get bent; they are in general nearly correct.

1585. You are, I believe, aware that it is proposed to establish standards of sub-divisions of the standard yard, and of the foot and inch; do you consider that practically such sub-divisions could be marked upon the existing standards?—No doubt they could upon some of them; those that have flat surfaces, but they have not all flat surfaces. Some of them have a groove, and they could not very well be marked upon that.

1586. What is the object of the groove?—For the rod to fit into.

1587. Could they not be marked upon one of the sides?—Very many of the standard yard measures, made by Mr. Bate, have a triangular groove all down the centre, and it would be impossible to mark them upon the upper side. The standard yards that were made by Mr. Bate were always made of that description during his life time, but we never adopt that plan now.

1588. Have you considered whether it would be desirable that such local standard yards, marked with sub-divisions, should be constructed of iron?—No, I think not. I think that brass is the better metal. You might mark sub-divisions upon one of the flat sides of the standard yard. Those we should recommend might be made upon this plan (*describing the same to the Commission*). They have a flat surface, and this flat surface might be divided as you please.

1589. You do not think that any confusion or difficulty would arise from the use of such measures?—No, not at all. The great object in using this measure is this:—In the city of London, I should think, they stamp very many dozens of wooden measures every week for linen-drapers; the measure is a round stick. They spring one into the standard bed, and they will not stamp a wooden measure unless it will bite, that is their expression; that is to say, if there is any shake in it, they throw it on one side, and reject it. I may state that a standard yard measure that I sent to the Standard's Office yesterday, has sub-divisions marked upon it, and, perhaps, it might be instructive if we were to look at it. This is an old measure (*producing the same*) belonging to the Hundred of Salford, near Manchester, and it was made in the reign of George III.; it is a proper yard measure, though it has never been verified at this office, and is a bar of brass, nearly an inch wide and one-sixth of an inch thick, having raised ends. The yard is divided into eighths, and one-eight into half inches, and the three last half inches into eighths of inches. It has been done in a very imperfect manner, but I daresay it was made to suit the place.

1590. (*The Warden of the Standards.*) Is that an inspector's standard?—It has been used, I have no doubt, as an inspector's standard. It was sent up to us with their verified standard yard, which we shall get re-verified, but we shall return this measure to the inspector. I thought it would be as well to send it up to the Commission that they might see it.

1591. (*Chairman.*) Do you deal largely in commercial measures of length?—No, we sell very few of them.

1592. Does your firm ever construct them?—No, not ordinary commercial measures of length.

1593. Do you know of what material they are usually made?—I know that they are commonly made of lancewood.

1594. Have you found that these measures and their sub-divisions are generally accurate?—Very fairly so.

1595. Although no standard measure, other than the yard, has yet been established?—None but the standard yard.

1596. Have you not found that the foot or inch was a little inaccurate?—No. There are of course very many thousands of those measures in use, and they all correspond very nicely. I should say that you may take an ordinary carpenter's rule, and you would find it within $\frac{1}{64}$th of an inch, taking the extreme length of it, they are what we term decent rules.

1597. Do you deal in metric measures of length?—No, we do not; that is to say, occasionally we have made such for an order, but we can not be considered to deal in them; there is no demand for them in England.

1598. Could you suggest any practical mode of establishing a conspicuous distinction between imperial and metric measures of length for commercial purposes?—I have not given it any consideration, but I do not see that we could alter our plans much. I made a measure the other day for a customer of ours who wanted the English yard, the French metre, and the Spanish yard marked on it, and we had it done in this way: the French metre was marked on one side of it, and then a line was drawn down the middle of the other side, and one part of it was divided for the Spanish, and the other for the English yard. So that we had two measures on one face of the yard; it was a broad measure made of wood of a tolerable size, and was near enough for all commercial purposes. I should say that the extreme length of each measure was adjusted within the $\frac{1}{64}$th part of an inch.

1599. (*The Astronomer Royal.*) What is your fundamental standard of the yard?—We take the standard from this office.

1600. Are you aware that there is an exposed mural standard at the gate of the Royal Observatory at Greenwich?—I have heard that there is such a thing.

1601. Have you never used it yourself?—No; I have never used it; I never saw it; but I have heard that it is there.

1602. Do you think that there would be any advantage in having a standard of that kind near to some important building in London, as, for instance, near to the Houses of Parliament?—I think there can be no doubt of that. We have always dealt to a very small extent only in measures of length, and therefore have never given them much consideration. We have dealt principally in standard yard measures, such as this on the table before me.

1603. (*Chairman.*) Have you supplied many local standard measures of capacity for the use of inspectors?—Yes; a very great many of the ordinary standard measures that we bring here for re-verification. We make many hundreds of sets of them.

1604. Have you also supplied sub-standards of capacity for Ireland?—Yes; but only for Ireland.

1605. Do you know any instances of such sub-standards being in use by inspectors which have not been verified in the Standards Department?—The whole of the sub-standards which we made for Ireland, both weights and measures, were none of them verified at this department, because the weights were of iron and the measures also, and they would not receive them here.

1606. Were they not verified anywhere?—No; they were dependent on us entirely. We made them very accurate, as accurate as the others when they left us.

1607. Of what material are those standards of capacity made?—The measures and weights were both made of iron for Ireland.

1608. And not of gun metal or copper?—No; because if they were made of gun metal we should have brought them here for verification.

1609. Are they also re-adjusted by you from time to time?—No; we never saw them again after issuing them.

1610. What is the cost of such a set of standard measures of capacity or sub-standards?—That is a question that I can hardly answer at the moment. I should think that the cost of a set of sub-standards would be about 10*l.*, supposing it was a full set.

1611. What is the difference in cost between an iron set and a gun metal set?—We should want 40*l.* or 50*l.* for a gun metal set, and about 10*l.* for an iron set.

1612. And what you supplied were iron?—Yes. They had them made of iron because they are cheaper.

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1613. Do you deal largely in commercial measures of capacity, both for liquids and dry commodities?—We sell a good many liquid measures and spirit measures.

1614. Do you sell dry measures?—Yes, a few.

1615. Those two descriptions of measures of capacity are quite differently constructed, are they not?—Yes, entirely so.

1616. As to liquid measures, of what material do you make them?—Liquid measures are made of pewter and copper, and the one before me on the table is called a spirit measure.

1617. Do you ever make them of tin?—They are made of tin for inferior purposes; for instance, oil measures are always made of tin.

1618. Do you ever make any liquid measures of brass?—No. We have made cylindrical measures of copper for use on board ship, called pursers' measures.

1619. Does their form differ very much?—The pursers' measures are always cylindrical; they are made of copper, and they have a handle to them; they have a wide surface at the top; they are not so very particular in measuring. This measure before me is a spirit measure that is used in public-houses generally for retailing.

1620. For what trades do you supply these liquid measures of capacity?—Publicans and innkeepers. Oilmen use the pewter for vinegar, and publicans use the pewter and the copper also for spirits.

1621. You supply oil shops and publicans; do you supply grocers at all?—Yes, in the same way; grocers want them for measuring vinegar.

1622. Is that conical copper measure with a neck measured up to the top or only up to the neck?—It is measured up to the termination of the cone, up to the neck.

1623. What would be the cost of a set of pewter measures from the quart down to the half gill?—Pewter measures are generally made from the quart down to the half gill, and their cost would be 10*s.* 6*d.*

1624. What would be the cost of a set of pewter drinking pots from the quart down to the half pint?—We do not deal in them.

1625. What would be the cost of a set of oil measures?—A set of oil measures are generally made from the gallon down to the half gill, and I think that the cost would be about 9*s.* or 10*s.*

1626. Do you deal in metric measures of capacity?—No; I have occasionally made a single measure for an experiment.

1627. Is it not the case that under the metric system in France, all metric measures of capacity for liquids must be made of a specified metal, the composition of which is tested before verification and stamping, and that it must be of a specified form; do you see any objection to a similar regulation being established in this country, so as to make a marked distinction between imperial and metric measures of capacity for liquids?—No, I think it would be very desirable.

1628. Can you give us any information as to the cost of metric measures of capacity for liquids?—No; I can give no information upon that subject.

1629. (*The Warden of the Standards.*) With regard to the pewter measures of capacity, are you particular as to the composition of the metal; that is to say, is the pewter always of the same quality of metal?—No; you may buy them of several makers, and their component parts would not all be alike. They are made principally by the pewterers, and the most respectable houses make the best measures.

1630. Do you make those pewter measures?—No, we do not make them ourselves; we only sell them.

1631. Do you test their capacity?—Yes, we examine them when it is necessary; but that one before the Commission is stamped by the city of London, and we have every reason to suppose it to be correct.

1632. Are they stamped before they come into your possession?—Yes; they are stamped by the city of London.

1633. (*Chairman.*) Do you ever find the objection which you said might apply to balances—that they get out of order, and that being stamped they are still supposed to be correct—is applicable to measures of capacity; that they get knocked in at all, and become incorrect, and that the stamp still gives them a false air of correctness?—Pewter measures and copper measures also will get out of order by use.

1634. You said that you thought it would not be worth while to stamp balances because they were apt to get out of order after they were stamped; do you find that the same objection applies to those measures?—Yes; but a balance would be more likely to get out of order, and more quickly than a measure would.

1635. Still the same objection might arise?—Yes, but you could not alter either of those measures very much unless you bruised them; anybody could knock up the bottom and make it smaller, or they might put something in and knock it out, and make it larger.

1636. What I mean is that the stamp cannot be an actual guarantee that the measure is correct?—Not at all; it merely shows the public that it has been correct once.

1637. And would not a stamp equally show that a balance had been correct once, though it might have got out of order afterwards?—Yes; I could also show you a stamped weight that professed to weigh 1 lb., though it now scarcely weighs more than ½ lb.

1638. Then you consider the value of a stamp only as a guarantee that it was once correct?—Yes; that is the intention of it.

1639. Do you sell commercial measures of capacity for dry goods?—We sell a few of them.

1640. Of what denominations?—From a bushel downwards. The ordinary bushel measures, the bushel, the ½ bushel, and so on which are specially for the use of measuring corn, seeds, flour, or anything of that sort that is sold by measure.

1641. Do you go from the bushel down to the ½ pint?—The bushel down to the pint is the greatest division that is usually made.

1642. What material are they made of?—They are always made of wood.

1643. What kind of wood?—I believe it is ash.

1644. Do you never use Canadian elm?—I think it is used for some measures, but I believe it is rather too expensive to be generally used. The one before me is ash, and they are usually made in a cylindrical form.

1645. What is the cost of a set from the bushel down to the pint?—The price varies according to the quality.

1646. Are they ever sold for 25*s.*?—Some bushel measures that we sell are 28*s.* each, and a set of measures of that quality would cost more than 2*l.* Then we have another bushel that we sell for 12*s.*, and a set of those measures would probably be about 25*s.*; that would be the cheapest set, and I should say the dearest would be something like 60*s.*

1647. Do you deal in any metric measures of capacity for dry goods?—No.

1648. I suppose you have never considered the question of how you might make a conspicuous distinction between imperial and metric measures for dry goods?—No, not for measures; I think I have given my opinion with regard to weights. Measures are only a very small part of our business.

1649. With regard to the subject of inspection, are your weights themselves subject to inspection by the local inspector?—No.

1650. Have you considered the question of making any or what allowance of error in commercial weights and measures?—As for commercial weights, we never think of allowing any error in them.

1651. You would not allow ¼ oz. in 56 lbs.?—Yes, in adjusting rough weights of 56 lbs. we always take care to leave them a quarter of an ounce heavier than the standard.

1652. Is that because they wear down by use?—Yes they very soon wear down to that, particularly when they are new and rough.

1653. Have you any fault to find with the mode in which the inspector exercises his duties under the existing system of inspection?—I think not. Generally speaking, most of them are intelligent men; there is here and there somebody who has got some odd crotchets that we might condemn.

1654. Have you any observation to make upon the practice which exists in some districts of inspection, of the inspector adjusting from time to time, as well as verifying, commercial weights and measures?—I object to that very much.

1655. In some places he keeps a small establishment for adjusting, does he not?—Yes.

1656. Do you think that leads to great evil?—Yes; I have something which I could say on that head which occurred a short time ago. Weights were supplied by us from 1 lb. down to $\frac{1}{4}$ oz. for the use of a tradesman at Wendover in Bucks; the inspector upon seeing them insisted upon their bearing his stamp, and charged 3*d.* for adjusting and 3*d.* for stamping. He called again some few months afterwards and said "Why they are all wrong," and then made the same charge a second time.

1657. Do you think there is no fear of an inspector ever seizing weights that are not really incorrect?—No, certainly not.

1658. We were told by a witness sometime ago that he considered that a bad inspector had the power of keeping a whole neighbourhood in terror by threatening to seize anybody's weights he chose?—There is no doubt of that.

1659. Still you think he would not venture to do it?—He dare not seize those weights in consequence of the stamp, because the former Act of Parliament says that a weight once stamped shall be legal throughout the United Kingdom, unless found to be defective or unjust. A weight once stamped by the authorized inspector is legal throughout the United Kingdom.

1660. Then no inspector can venture to seize a weight once stamped, in order to obtain a fee on conviction, or anything of that kind?—No, unless it is defective or unjust.

1661. Inspectors have a great objection, have they not, to weights being sent down stamped before coming into their district?—Yes, a great objection generally.

1662. Do they consider it as an interference with their interests?—Naturally so.

1663. And the inspectors I think maintain at the same time, do they not, that it causes some confusion if it comes with any stamp except that of the district?—No, it need not in the case of those who are rightly disposed; for instance, I know some inspectors in the county of Surrey, if they go into a place and see the city of London mark or any other authorized mark that they are acquainted with, they say "Oh! that is all right;" if they suspect the weights to be wrong they would examine them, but they would pass over the mark because they know that they dare not make an objection to it.

1664. You do not think, as we have heard it recommended, that weights should be stamped with the county arms and not be allowed to be current beyond the county?—In some counties there are a number of boroughs and corporations that have each local marks, and that the others cannot interfere with.

1665. What I referred to was a weight stamped in one county being used in another?—The Act of Parliament authorizes that a weight once stamped by an authorized inspector is legal throughout the United Kingdom, unless found to be defective or unjust.

1666. You see no inconvenience in that state of the law?—Certainly not, if it can be recognized.

1667. You stated that you thought, generally speaking, there was no fault to find with the mode in which inspectors exercise their duties; do you consider that they exercise them less fairly when they are paid by fees upon convictions?—That is rather an awkward thing to give an opinion upon; I know some very honourable men who receive their portion of those fees, and who, I believe, would not do anything dishonourable; they never condemn a weight or measure unless it really is incorrect. Then, on the other hand, they say that their salary is so small that unless they had those fees they could not live; therefore my opinion is that an inspector ought to be paid a decent salary so as to enable him to live, to make him independent of all that.

1668. You do not think that there is any fear of his being slack and allowing false weights to pass, or neglecting to inspect very closely, when he derives no advantage from the fees?—I should be very sorry to charge anybody with such a thing; I do not think there is much fear of that; I only think that they might be a little more sharp, if they thought they could get something out of it.

1669. Do you think that a man who is paid by fees could venture to seize weights as false that were really true?—No, because he would have to prove it before the magistrates.

1670. But if he took away a weight, what proof could the tradesman bring that the weight was true?—That is very true, but still it would carry the appearance of being altered. If such a weight was handed over to me, I could tell very easily whether there had been any alteration made in it.

1671. You do not suppose that an inspector often obtains convictions against people who are really innocent?—No, I think that is a very rare thing.

1672. You do not suppose that it is absolutely in the power of an inspector to obtain a conviction against anybody he pleases, right or wrong?—No, I do not think so.

1673. (*Sir J. G. S. Lefevre.*) If he was paid by salary alone, would he not be inclined to be too indulgent?—No, I think that the city of London inspectors are paid by salary, and have nothing at all to do with the fees, and I believe that they do their duty fearlessly in every way; I believe there is no part of England that is better managed than the city of London in that respect.

1674. (*Chairman.*) It is said that where inspectors are paid by fees there are always more convictions; is that because the one inspector is too sharp, or that the other is too slack?—If you look in the "South London Press," if you ever have an opportunity, you will every now and then find that the two inspectors there have a batch of them up, about 30 or 40 each, about every month. That is a considerable number, but then it is a very large district, and there are a number of very loose trading people there.

1675. You told me, I think, that you thought an inspector seldom obtains a conviction wrongly; therefore if there are more convictions where the inspector is paid by fees, do you suppose it must be because there are more culprits?—Decidedly.

1676. Therefore, the more culprits there are, the more vigilant must the inspector be?—Yes. There was an instance in the county of Surrey, where there was a man who three separate times was fined 5*l.* as a penalty; he had committed the same offence over and over again for a considerable length of time, and the consequence of those convictions was, that soon afterwards he gave over business in that neighbourhood, and went away somewhere else.

1677. Was that in Lambeth?—No, I think it was in Walworth, not far off.

1678. Can a tradesman who considers that his weight is just, insist upon having it tested in court?—Yes, and I have known that done. I have seen weights examined before the magistrates. When the inspector proves his case, he takes his scales and his standard weights with him, and the defective weights are brought out, and he states how much they are deficient, and the magistrate or anybody else can thoroughly examine them and see that it is as he states.

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1679. Supposing an inspector was so unscrupulous that if paid by fees he would try to pull people up unjustly for the sake of the fee, would not it be quite as easy for him, if paid by salary, to extort money under the threat of seizing weights?—I do not know about that.

1680. An inspector has no power of seizing a balance, has he?—I think not.

1681. Do you see any reason why that difference should be made between balances and weights?—No, I do not see any reason why they should not seize a balance as well as a weight, because if a man is convicted of having a false balance, it ought to be brought before the magistrate, and the magistrate may be satisfied that the balance is false; that is my opinion of it, and it always was.

1682. Has the mode in which the system of inspection of weights and measures is now executed, whether by local inspectors who are not policemen, or by policemen who also act as inspectors, come much under your observation?—No, there is very little that actually comes under my observation. I only hear of it; I do not see it.

1683. Do you think that the inspector being also a policeman would have a good or a bad effect?—I do not see any objection to the man being a policeman; but they are generally obnoxious to tradesmen.

1684. Do you think that an ordinary policeman has knowledge enough usually to act as an inspector of weights and measures?—It is only the inspectors of police who are inspectors of weights and measures, and they are generally very intelligent men, if we may judge of them by the wording of the letters which they write to us about standard weights and measures; we find them very intelligent men and men of education, and, therefore, I should think, very suitable for making good inspectors of weights and measures. You should have some inspectors here and examine them. Mr. Strugnell, I believe, was inspector of police before he had his appointment in the county of Surrey; at all events, he was in the police, whether an inspector or not, and he is a very intelligent man, and I know very many others who are equally so.

1685. Have you been in the habit of acting as agent to the local authorities for the official verification in the Standards Department of their local standards?—I suppose I am always considered an agent in that way; they send them to us to be adjusted and to get them re-verified.

1686. Have you any observations to make upon the practice of this department in the execution of their duty?—None whatever, it always appears to me to be done in the very best manner, and has been for a series of years.

1687. As to the provisional scale of allowance of error now in force and sanctioned by the Commission, have you anything to observe upon that?—I consider that the allowance of error is too much.

1688. Do you think that the allowance of excess and the allowance of deficiency are both too great?—I would not allow any deficiency. I would not stamp a weight here in this office if it was less than the standard. I would allow a trifling reasonable amount of excess. If you will allow me I will call over the number of grains that I would allow. We will commence with the 56 lbs. avoirdupois. You propose to allow five grains excess or deficiency. I would not allow any deficiency, and I would only allow three grains in excess instead of five. I would also allow three grains in excess on the 28 lbs., instead of five, and two grains on the 14 lbs., instead of five; I think that is ample. On the 7 lbs. I would allow two grains in excess, and on the 4 lbs. and the 2 lbs. respectively I would allow one grain in excess. On the 1 lb., instead of a quarter of a grain in excess or deficiency which you allow, I would have half a grain in excess. On the 8 ozs. I would allow half a grain in excess, and on the 4 ozs., the 2 ozs., and the 1 oz. respectively I would allow a quarter of a grain in excess. As to bullion weights, I should be content for it to remain as the department has left it.

1689. With respect to the period now fixed by law for the re-verification of local standards, namely, not less than every five years for weights and ten years for measures, do you consider that those periods are sufficient?—I think that it never should go beyond five years for weights. I think those periods do very well for some places, but not for all.

1690. Do you think that five years for weights is sometimes too long?—Yes; it is too great a time for many places, because there are many instances where they now have them adjusted every year, but there are other cases in which they would not have them adjusted at all if they were not compelled.

1691. And do you think that 10 years for measures is too much?—I have here a letter from Leicester from an inspector, who writes,—"I do not know "whether it is deemed necessary to have the "measures re-verified, as it is impossible for them to "get wrong, and the yard measure also I am not "quite certain as to the Act of Parliament as to "measures; if it is proper they should come you will "let me know, and oblige." Here is a man who supposes that measures never get wrong, therefore this man would keep them for 50 years before he would have them re-verified.

1692. You would not, as has been suggested by one witness, reduce the term one half in both cases?—I think five years is long enough for measures.

1693. And you think that five years for weights is often too long?—In many instances it is too long.

1694. (*Sir J. G. S. Lefevre.*) How do measures get wrong?—The shape alters; they put certain measures one in the other, from a quart down, and they rattle as they are carried about, and they wear one another. This applies more to the rural districts than anywhere else, a little sand and grit gets in them, and the bottom of those measures is worn in a deep groove in many instances.

1695. (*Chairman.*) Do you find that publicans' measures and such like get knocked about accidentally?—Publicans' measures get terribly knocked about.

1696. You think that five years for measures is rather long?—I think I would say five years for measures, and not exceeding three years for weights. I have a set of weights in hand now that have come up from the borough of Stockport, which have been in use five years; they have been much used, and carefully used, and the 56 lbs. weight, I think, is not more than 25 grains light in five years, but this is an exceptional case. The same weight used in some districts for the same time would be, perhaps, 100 grains light.

1697. Were those standard weights?—Yes; those were all standard weights, and the smaller ones are in about the same proportion; the 56 lbs. weight is about 25 grains, or hardly so much; I should suppose the 28 lbs. may be 14 or 15 grains, and so on.

1698. I think you said at question 1026 that about 50 grains was the average of error that you found in the 56 lbs.?—Yes; that is speaking of the average of a large number, but there is a very great majority that do not get so light as that, especially those that are carefully used.

1699. It is said that sometimes by negligence weights which ought to have been in the custody of the inspector appear to have been knocked about immensely, is that the case?—Yes, they are very bad sometimes.

1700. Have you ever found cases of such gross negligence that the weights have been knocked about as if they had been used as hammers?—Yes, several. I think three years for weights is the outside that should be allowed.

1701. Are you aware that the Commissioners have recommended in their first Report that the Standards Department should be empowered and required to verify weights and measures, other than standards, on payment of a specified fee, in all cases when they shall be called upon to do so, and special accuracy is requisite; do you think that such a regulation will be of public advantage?—I should think not. I do not

think you would have many applications, because generally speaking, extreme accuracy is not wanted. There are some large manufacturing businesses that use a great many weights that have a set of standard weights of their own, and they make application to us and say, "We want a set of standard weights, can you "make them for us?" and we say, "Yes." Then they ask us, "Can you get them stamped officially?" and we say "No, they will not stamp them officially." They formerly did in this office, but they will not now; I know of several instances. If you look back at the old returns, you will find that several large houses had a set of standard weights, and it might be allowed in such cases as that. I have got a very old indenture, in the reign of George III., where a man of my own name, who was a grocer in the city of Salisbury, had a set of standard weights passed through the old Exchequer Office for his own satisfaction in examining and testing his own weights, but that sort of thing has not been allowed of late years.

1702. It would be a satisfaction to an individual who wished to have an official test and examination?—Yes. There can be no objection to it if people desire it.

1703. (*Sir J. G. S. Lefevre.*) Can you tell us any instances in which you have found any great errors in measures?—No, I cannot say that I ever have, at least not arising from ordinary fair wear.

1704. What amount of error would there be?—I have found a bushel measure, an inspector's standard, that was half a pint too small, but that was in consequence of having some severe bruises upon it, and that is a proof of the period of time of 10 years being too long, because this measure had probably been in use some years in that same condition.

1705. (*The Warden of the Standards.*) Do you think it would be desirable to make any alteration in the official scale of error in other standards besides avoirdupois weight?—No, I think not; I think bullion weights are a different thing; you may work them, I suppose, as you please.

1706. And in measures of capacity and measures of length?—No, I think not. I do not make any objection to measures of capacity, nor yet of length; but I think in avoirdupois weights there ought to be no further allowance than what I have mentioned, and I would not stamp any weight in this office that was at all less than the standard.

1707. (*Chairman.*) Have you any statement on any part of this subject that you would wish to make to the Commission?—As we are upon the subject of inspectors, there is a circumstance which I think ought to be mentioned. I must not give the name of the inspector; here is the postscript to his letter:—"I beg to remind you that I have never had any "commission on the orders I have sent." This was an inspector in a corporate town. The orders come only from the corporation, and he uses the standards only in virtue of his office.

1708. (*The Warden of the Standards.*) Is that a solitary instance of an application by an inspector for a commission?—No, it is not. As to the manner in which standard weights and measures are kept, I have to mention an instance of those belonging to a county. We had four or five sets up from the country, and one of the inspectors called and said, "You have got all "my weights and measures, I keep them in very good "order." I said, "Yes, they are very clean." He said, "I am very particular about my weights and "measures. I always make my servant clean them "every week with Flanders brick, when she cleans "the candlesticks." The consequence was that the 56 lbs. weight was more than three-quarters of an ounce too light, and all the others in proportion; every sharp angle was removed, and there was a beautiful polish upon them; so I told him, "For the "future do not allow your servant to have anything "to do with them, if there is any dirt upon them "take a damp sponge and wipe it off, do not allow "any corrosion upon them, but never let them be "cleaned. And as prevention is always better than "cure, never let them get dirty if you can avoid it."

1709. (*Chairman.*) For how many years had he used them before re-verification?—I suppose he had been doing that for, perhaps, five years.

The witness withdrew.

Mr. James Daws examined.

1710. (*Chairman.*) You are an inspector of weights and measures, are you not, for a part of the county of Surrey?—Yes, for the Newington district.

1711. When and by whom were you appointed?—By the county magistrates in February 1865. I was deputy inspector for two months up till April the 5th 1865.

1712. Had you any previous knowledge of the duties of the office before you were deputy inspector?—Yes, I was for 19 years before that assistant to the late inspector of that district.

1713. Do your duties include the custody and care of the local standards, the testing and stamping of commercial weights and measures, as well as their inspection as to their legality?—Yes.

1714. Do you act under any and what instructions?—Only by order from the magistrates.

1715. What Acts of Parliament do you act under?—Under the Act of the 5th and 6th of William the Fourth, and under the recent Act.

1716. When you said that you were under instructions from the magistrates, do you mean that you have any written instructions or authority from them as to how you are to perform your duty?—No, no other than authority to enter shops and inspect the weights and measures.

1717. Have you no rules laid down?—No, none whatever.

1718. Are you provided with copies of the Acts of Parliament which relate to your duties?—No, we provide ourselves with them.

1719. Your attention has of course been drawn to their provisions?—Yes.

1720. Do you execute all the duties yourself, or have you any assistance?—I have an assistant to assist me in taking evidence; he takes notes of everything we seize, and gives evidence.

1721. Are you paid by salary, or have you other emoluments?—I have 250*l.* a year salary, and part of the fines.

1722. What is the annual gross amount of the whole?—I should say upon the average about 500*l.* a year.

1723. Therefore, the fines and the salary are about equal?—Yes.

1724. Do the fines vary very much from year to year?—Yes, very much. The first two years they were much heavier than they are now. I will mention the number of convictions, between February 1865 and June 1869 there were 1,095 convictions. I have seized 1,540 weights, and 1,308 measures, and detected 641 false balances.

1725. Do you think that false weights have much diminished in the neighbourhood?—Yes, much diminished. We find more in balances now than we do in weights.

1726. And the fees have fallen in the same proportion?—Yes, I find the average is about 2*l.* 2*s.* per case. I have half of the fines, and the other half goes to the county.

1727. What disbursements have you to discharge out of this gross amount?—We have great expenses. I have to pay salary to an assistant, who attends me in my inspection. Another assistant to attend to the standards of weights and measures. I have to pay rent of offices, and all charges made by summoning

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officer for delivering summonses, besides the cost of keeping a horse, vehicle, stabling, &c.

1728. What do you suppose is your net remuneration that you receive after deducting expenses?—Not much more than 250*l*.

1729. Therefore, the fines about pay the expenses?—Yes, about that. Although the amount of fines is so much, there are a great many persons who have been fined and do not pay at all. There is time given before the payment is demanded, and perhaps they may have a bill of sale of their goods, or have become bankrupt, or even gone away. We lose a considerable amount of the fines in this manner.

1730. With respect to your local standards, how many have you in your custody?—I have one set of avoirdupois weights from 56 lbs. down to half a dram, and one set of decimal troy weights from 100 ounces down to a weight of the lowest denomination. We have no use for these decimal weights, although we have got them. I have never found a weight of that description in the district.

1731. Of course you have no metric weights?—No.

1732. What precautions are taken for the security and preservation of your standards?—We are bound, by the magistrates orders, to bring them up once in three years to the Exchequer.

1733. How often are they used?—Almost every day.

1734. How long have they been in use?—Since May 1868, when they were last examined.

1735. How often do you re-verify them?—Once in three years.

1736. Who gives directions for their adjustment and re-verification?—The Clerk of the Peace gives me orders.

1737. Who is responsible for their being duly re-verified according to law?—The magistrates, I believe, as a body.

1738. By whom are these standards adjusted?—By Messrs. Short, De Grave, and Fanner.

1739. How long does it take for the adjustment and re-verification of the local standards?—I have been kept without them for a fortnight.

1740. Does that cause any public inconvenience, or have you copies to use in the mean time?—No, I have no other copies whatever.

1741. Then your operations are stopped?—Yes; I close the office during that time.

1742. But you are allowed a certain holiday, are you not, in the year?—I have no holidays allowed; it is a thing that I have never asked for.

1743. Is there no legal interval during which you can avail yourself of a holiday?—No.

1744. We have had a statement from one inspector that there was about a fortnight in the year during which he did nothing whilst the standards are being re-verified; but that does not seem to be the case with you?—No. I always go to Messrs. De Grave, Short, and Fanner to know when they are at leisure, so that I can have them back as quickly as possible.

1745. Does any public inconvenience arise from that stop to your business?—No, because there are two offices so close that if I am closed the other is open.

1746. Does the other inspector come into your district, or do you go into his?—No.

1747. Do you borrow his standards?—No, but they go to his office. We are bound not to stamp for any one whose business place is out of the district; but there are so many brought to us that we do not know where they come from. They will not tell us, so that if they wanted some stamped in my district, and my office was closed, they would go to the other inspector.

1748. You cannot inspect in another district?—No.

1749. Does any public inconvenience arise from your inspection being stopped?—It does partially, no doubt, during that time.

1750. What balances have you in use?—Six.

1751. How often are they adjusted?—Once in two or three months or so.

1752. What are those balances?—I have a set which I try from 56 lbs. down to 14 lbs., one from 7 lbs. down to a quarter of a pound, and one from 2 ozs. down to half a dram; these are used for indoor work. I have a similar number for outdoor inspection.

1753. Where is your office situated, and what arrangements do you make for attendance?—In Wansey Street, Walworth Road, near the Vestry Office, and I attend twice a week from 11 till 3 o'clock.

1754. How long are the weights and measures kept at your office before being returned to the owners?—I do them immediately; I never require them to leave them. I do them at once as they come in, and before them.

1755. Are there any troy weights used in your district?—Very few. Mine is a very poor neighbourhood; there are a few pawnbrokers and a few silversmiths, just on the Causeway.

1756. Do you ever inspect them?—I have inspected their beams, but I have no troy weights to inspect with.

1757. Do you ever adjust any weights and measures?—No.

1758. Have you any regular system laid down for the districts that you visit as inspector?—No, not any particular system.

1759. What is the extent of your district of inspection?—I have eight parishes to look after; St. Mary Newington, Camberwell, Bermondsey, Rotherhithe, the Manor of Hatcham, St. John's, St. Thomas's, and St. Olave's Southwark; they all lie together.

1760. Can you tell us the population of the district?—No; it is very thickly populated.

1761. Or the number of shops subject to inspection?—No.

1762. Do you inspect any weights, measures, and balances in open places other than shops?—Yes.

1763. Have yon ever come across any metric weights or measures?—No.

1764. Or any weights and measures other than of those denominations for which there are official standards?—No.

1765. Or any so called local or customary weights?—No; not in my district.

1766. Do you experience any difficulty or annoyance in the exercise of your duties as inspector?—Occasionally. It is a low neighbourhood down by the waterside, Rotherhithe, Bermondsey, and so on.

1767. Do they resist inspection?—Some of them.

1768. Is that chiefly where false weights are used and detected?—Yes.

1769. What is your practice as to the allowance of error of the weights, measures, and balances that you seize as defective?—That would depend upon the trade.

1770. What do you allow in a 56 lbs. weight?—I very seldom take a 56 lbs. weight, the deficiency being under 2 ozs.; I allow in smaller weights about a dram. to the lb.

1771. Do you find much difficulty arising from the provision of the law which empowers you only to inform against persons who use defective balances, and not to seize them?—No; it would be a very bad plan to seize them, because we could not bring them before the magistrates in the same state as we find them; they have so many ways of defrauding the public.

1772. If you seize a balance you might show how defective it was?—No, as it would sometimes appear when presented to the magistrate to be quite correct. Cheesemongers and chandlers have enamelled plates, and the scale is quite correct when it is dry, but before they commence weighing, they place on it a lot of water, and of course we cannot bring it in the same state that we found it.

1773. You would not wish to alter the law in that respect even where there is evident fraud?—No, only I think that severe fines should be inflicted for a

false balance and for false weights, but for a false balance in particular, because I think there is no excuse. Any man must know, if he looks at the scale, whether it is an uneven balance or not.

1774. To what extent are the larger weighing machines and those with special weights, showing a much larger weight on the lever principle, including steelyards, subject to your inspection?—They are, to a great extent, and I always inspect them when found.

1775. Have you ever interfered with balances with balance balls? — No, not where I find the scales correct.

1776. Or with balances of peculiar construction, such as balances with special pans for coals?—No; when I find them correct, I never interfere with any balance of that kind. I think that tradesmen ought to be allowed some means, such as a balance ball or something of that kind, to balance the scale with, and if they do not take that precaution when they have got the means I think they deserve to be summoned for a slighter deficiency than other parties who have not got the means. I should summons a party with a balance ball for six drams, where I should not summons another party for less than a deficiency of half an ounce.

1777. Has your attention been directed to the provisions for adding to the duties of inspectors of weights and measures the inspection of petroleum and of adulteration of food? — Yes, for the inspection of petroleum.

1778. Are there any other offices of inspection in your district, such as courts leet or annoyance juries?—No.

1779. Have you had any opportunities of observing how the duties of inspection are performed in other districts of the county?—No; not with regard to the duties or the way they are performed, but I have many times been in the country and my attention is always called to scales in the shops. I find that there is very great neglect in some parts, and things look in a very bad condition.

1780. Is that in places where the police inspect?—I believe it is.

1781. Do you think that the inspectors are less diligent where, unlike your case, they are merely paid by a fixed salary?—They do appear to be, certainly.

1782. Are you aware that the police officers receive no remuneration for their duties in connexion with the inspection of weights and measures?—I think that is so, except in a very few cases.

1783. Considering the peculiar nature of the existing duties of inspectors of weights and measures, that they require practical experience, skill, and accuracy for the proper comparison and verification of weights and measures, and that the inspection necessarily is an office of a particularly obnoxious character, I suppose you think that people who receive no special remuneration will not attend so well?—I believe that that is the case in many districts.

1784. Do you always produce in Court the false or defective weights and measures that you inform against?—I always produce them before the Court, and the parties, if they do not feel satisfied with the evidence given, can have them tried before the Court.

1785. Are they ever tested there?—Occasionally.

1786. Are the balances that are charged with fraud ever produced in Court?—No, not without the parties choose to bring them forward themselves.

1787. You then come forward and declare that you found the error?—Yes; of course I have a witness, my assistant.

1788. Then the tradesman may produce the balance, but you have no power of compelling him to do so?—No.

1789. You say that producing the balance is not always much evidence, because when dry it may be all right again?—Yes. There are many ways in which they can alter it during the time. I have witnessed sometimes a retail coal scale that will have dust adhering to the scoop to the extent of 2 lbs., and they weigh as low as 7 lbs. of coals to the poor people. I have also found a pound or a two pound weight tied under the scoop.

1790. Have you any further information to give to the Commission on the subject beyond what I have asked you?—I do not know that I have.

1791. (*The Warden of the Standards.*) Have you found many frauds in connexion with weights and measures, and that you have not been able to interfere with them, such as where parcels of goods are made up beforehand deficient in weight?—Yes, often. That causes very great expense in detecting those parties. When I have a suspicion of anything wrong, I am obliged to send a stranger, and pay his expenses, to go and purchase things there, and to see whether they are actually giving correct weight or not. If I find anything wrong, I give them a caution; and if I go again I summon them for a smaller deficiency in their weights than I should at any other time. Bakers have got a system of weighing different to other people. Instead of keeping a 4 lbs. weight on the scale to weigh a 4 lbs. loaf, or a 2 lbs. weight against a 2 lbs. loaf, they keep, for instance, or rather are supposed to keep, a 7 lbs. and a 1 lb. on the scale; and then, if they weigh a 4 lbs. loaf, they place the 4 lbs. weight on the bread side of the scale with the bread. Now, if it is a correct scale and the weights are correct, it would be all very well; but instead of being a 7 lbs. weight and a 1 lb. weight on the scale, a 7 lbs. and a $\frac{1}{2}$ lb. and a $\frac{1}{4}$ lb. are often placed behind the 7 lbs., and perhaps the weights in the scales are so close together that they are not looked at very narrowly. If I suspect this, I send a stranger for a loaf, which I find perhaps 3 oz. or 4 oz. deficient. Then I go back to the shop again in a few days, and if I find the least draught on the scale or the least deficiency in the weights, I summon the man and state the case before the magistrate.

1792. (*Chairman.*) Cannot you summon the man for sending you wrong weight?—Not under the present Act.

1793. You have the same remedy, have you not, as any ordinary individual?—Yes, I could do so.

1794. You might bring him up for having cheated you?—Yes; but if I get the least chance of summoning him for a false weight I do so, and I get a heavier fine inflicted; and it is just the same way with the retail coal dealers.

1795. (*The Warden of the Standards.*) Your only remedy is to be very sharp upon his weights and scales?—Yes.

1796. But under the present law you cannot help yourself, and nobody else can help himself, for getting short weight?—No; there may be a law but it does not come under our Act.

1797. (*Chairman.*) If a private individual were to find it out and be able to prove it, he might recover damages?—I believe he might, but it is a deal of trouble that people have not time to go into; there is no summary process.

1798. (*The Warden of the Standards.*) As to the practice of making up goods beforehand ready for sale, such as half-pounds of sugar and so forth, do you think there is much fraud committed in that way?—A great deal. When I send to purchase those kind of things, I often find perhaps half an ounce short, or 1$\frac{1}{2}$ ounce in 1 lb. of sugar, and two or three ounces in a quarten of flour, and so on.

1799. If there were a provision of law by which all shopkeepers were obliged to have the weight legibly marked on such parcels, and if you had the power of going in and trying any of those parcels and finding them deficient to seize them, do you think that that would be a remedy against existing frauds of that description?—Yes, and I think it would be a very great benefit to the public.

1800. With regard to the weights that you seize, do you find some very deficient and that there is much fraud in that way?—Yes, some of them very much so.

1801. Can you give us any instances of any fraudulent weights?—Yes, I have some here which

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I could show you which are used in shops. Here are weights (*producing some weights*) representing a 1 lb. weight, one of them is of cast iron hollow and filled up with cork.

1802. What weight is it really?—It does not come quite to half a pound, about 7 ozs. 6 drachms.

1803. And it purports to be 1 lb.?—Yes.

1804. (*Chairman.*) In what sort of shop was that weight found?—These were detected in the street, and that one is for fruit, but I have found such in shops occasionally. After we detected so many with cork bottoms, they tried a new plan, and instead of having a hollow bottom with cork at the bottom, they had them cast hollow and run lead over them.

1805. Are those chiefly used in weighing goods that are sold about the streets to poor people?—Yes; some of those are fruit measures; here is a half pint measure (*producing the same*) with a false bottom, it does not hold quite a gill, we find many such cases as those. In the case of publican's pots, we find many of them with their bottoms all beaten up; they keep the sides pretty level, but they knock the bottoms up.

1806. What is the difference in price of the articles that are sold by those measures?—I do not know; you will find that they are used for strawberries, cherries, and grapes, and those sort of things.

1807. (*The Warden of the Standards.*) Do you think that poor people can at all protect themselves against those frauds by having to pay lower prices for the articles?—No.

1808. Without reference to the quantity ostensibly sold, is the price really less in consequence of their getting less in quantity?—The price I presume is less, in consequence of deficient quantity being given. This is what I have taken off from a scale in a very respectable baker's shop in High Street, Peckham; it is a lead plummet (*producing the same*). I went into the shop one Saturday evening, and we are obliged to be very quick and to be in and out again, because, if not, one of the neighbours will run and tell others in the neighbourhood. In the shop I saw a counter machine, and the man had a hole cut into the counter to let the bottom part of the machine through. I took the weights out, and I found there was a very great draught; I took off the plate to see if there was anything on the plate, but there was nothing to be seen, as I had expected; I then jumped over the counter and looked underneath, and I found that this plummet of lead was placed at the foot of the machine under the counter; it weighs I think nearly three ounces. Every person that bought either a 1 lb. loaf, or a 4 lb. loaf, or a quartern of flour, lost in weight to that amount. I sent and purchased some bread and flour, and found about the same deficiency in the weight of the flour, because the flour was weighed before I took this off; but the bread was of course correct, because I had detected the plummet and taken it away, and the scale was correct. We often have cases of that description and it is done by various houses.

1809. Are there any provisions of the law which you think it would be expedient to alter in order to give an inspector more power to prevent frauds?—I think it would be beneficial to punish proved cases severely, and to give it every publicity by advertising, &c. in the local papers. I think that would be more benefit than anything else. I think that there is very great credit due to the Editor of the South London Press since he has taken up such cases; he has published every particular, and that has been a very great annoyance to the tradesmen; for it is not the few pounds of the fine they mind, but they do not like their names published in the paper. I think that has done very great benefit to the district.

1810. (*Chairman.*) You would recommend that they should be officially inserted either in the Gazette or the local papers?—It would be a very great benefit to have them inserted in all the papers.

1811. Do the tradesmen generally take any trouble to keep the cases out of the papers, if they can do so?—I believe it to be generally the case, and some reporters of certain papers, I believe, are found who would be willing in consideration of receiving a few shillings to pass the case over. That is why I think there is great credit due to the editor of the "South London Press" who has made it his business to publish those cases, and he does it in a very straightforward manner.

1812. Your district is supposed to be one of the most fraudulent in London in that respect, is it not?—I believe it is so; it is very thickly populated, and among so many poor people that is where we find the most fraud.

1813. (*The Astronomer Royal.*) I understand from you that you receive one half of the fines on conviction?—Yes.

1814. Is that by a standing order of the magistrates of the district?—Yes.

1815.—No difference is made in special cases; it is a general standing order?—Yes, that is so.

1816. Will you be so good as to put in a copy of the authority under which you exercise your duties of inspection?—Yes.

The same was delivered in, and is as follows:

"Now, I, Thomas Tilson, Esquire, One of Her Majesty's Justices of the Peace for the County of Surrey, do hereby authorize James Daws, inspector of weights and measures, duly appointed under the said Act passed in the sixth year of his said Majesty, for the Metropolitan District A., east, in the county of Surrey, to enter at all seasonable times into any shop, store, warehouse, stall, yard, or place whatsoever within his jurisdiction, wherein goods shall be exposed or kept for sale, or shall be weighed for conveyance or carriage, and thereto examine all weights, measures, steelyards, or other weighing machines, and to compare and try the same with the copies of the imperial weights and measures required or authorized to be provided under the authority of the said Act passed in the sixth year of his said Majesty.

"Given under my hand this twenty-sixth day of April One thousand eight hundred and sixty-five.

"(Signed) Thos. Tilson."

The witness withdrew.

Mr. C. W. Blyth.

Mr. Charles William Blyth examined.

1817. (*Chairman.*) You are employed by the Corporation of London to stamp weights and measures, are you not?—Yes.

1818. When and by whom were you appointed?—In March 1861, by the City Lands Committee.

1819. Had you any previous knowledge of the duties of the office?—I had; knowing my predecessor very well I was frequently in his office.

1820. Do your duties include the custody and care of the local standards?—Yes.

1821. And testing and stamping commercial weights and measures?—Comparing the weights and measures that come in, with the standards which are examined in the Standards Department.

1822. But the inspection is in the hands of another person is it not?—Yes, it is in two persons hands now.

1823. Do you act under any and what instructions?—None whatever, only under the instructions of the Act of Parliament.

1824. Are you provided with copies of the Acts of Parliament relating to your duties?—Yes.

1825. And your attention has been drawn to their provisions?—Yes.

1826. Do you execute all the duties yourself, or have you any assistance?—I do all myself.

1827. Are you paid by salary or have you any other emolument?—By salary entirely.

1828. What is the annual amount of your salary?—130*l.* a year I get now.

1829. When weights and measures do not agree with the standards, what do you do?—Then I reject them.

1830. Are they brought up and condemned, or what?—They are taken away by whoever it may be, either by pewterers, or by coppersmiths, or scale-makers, and then they are brought to me again.

1831. How many local standards have you in your custody?—I have two sets.

1832. Have you any standards of troy weight?—One set.

1833. And of decimal bullion weights, how many?—None whatever.

1834. What precautions are taken for their security and preservation?—They are kept in my office.

1835. Are you the only person who has access to them?—I am the only person, no one is allowed in my office but myself. By a contract which the Corporation has with Messrs. De Grave and Co., they come once a month to clean the beams and the pans, and once a year the standards come up here to be reverified.

1836. How long have they been in use?—From 1826.

1837. How long does it take to adjust and reverify the local standards?—I do not know how long they are kept, sometimes they may be a month.

1838. During that time are you deprived of their use?—No, because I have two sets. I have one set of liquor measures, from the quart down to the half gill, I have a set of dry measures, which is from the bushel down to the half gill, and I have a set of avoirdupois weights.

1839. But when any set is being reverified would you have only one set?—I have another set in my office. At the present time I am using a set that was here and examined two years ago.

1840. Have you two sets of every kind?—Yes, two sets of every kind excepting troy weights.

1841. When are the troy weights reverified?—That I cannot exactly state. It is about two years since.

1842. What other apparatus have you for the discharge of your duties?—The dies.

1843. What stamps do you use?—I have a set of dies for iron weights, a set of dies for brass weights, and a set for liquor measures, and the brands for the wooden measures.

1844. What books do you keep?—Merely books such as these (*producing some books*). This is a sort of cheque book of the day's work; then there are larger books that I insert them in every day. I keep the foil and give the cheque with the goods going out. Here is a weight book, and a liquid measure book, and a wooden measure book; we keep a separate book for each kind, but with the weight book there are two divisions, brass and iron.

1845. What regulations are established for the testing and stamping of new commercial weights and measures?—I adjust the liquor measures by liquor, and the dry measures by seed.

1846. You do not do it by cubic measure?—No, by measurement of the standards. I have hoppers, one that takes a bushel, half a bushel, and a peck; then I have a smaller one that takes from a gallon down to half a gill, and they are fixtures.

1847. Where is your office situated, and what arrangements do you make for attendance there?—At the Guildhall, and I attend there from 10 till 4 every day.

1848. Are the weights and measures attended to at once when they are brought to you to be stamped, and are they at once returned?—If they are right, then I stamp them.

1849. But you do not retain them long in the office?—No, no longer than adjusting and stamping them.

1850. How long does that take?—According to what the quantity may be of weights and measures, or whichever it may be; because sometimes I may have perhaps a gross in from one person, or I may have six dozen, or I may have, perhaps at the same time, what we call a set of weights, a 7 lb. set of weights, and another person comes with a set of brass weights all to be done at once.

1851. You do not keep them for a day or two?—No, unless they come in in very large quantities. Thus the firm of Messrs. Warner, of Jewin Crescent, sometimes will send me something like 100 or 120 dozen at a time, and I do them when I have leisure; therefore they would be in the office perhaps for a fortnight or three weeks or a month, or perhaps longer than that, when the owner does not send for them.

1852. Have you ever been called upon to compare a weight or measure in which minute accuracy has been required?—I have had standards brought to my office to compare them with my standards before they have been brought up to the Standards Office. I have had that sort of thing done; I have had the standards, and I have compared them with minute accuracy, because I knew very well that unless I was very particular with them, they would not pass here.

1853. Do you ever adjust any weights and measures when they require it?—Sometimes to save trouble if a weight comes too heavy I may take a little piece out.

1854. Can you describe the process of the comparison of weights?—The first thing when I go to my office, as I say there is no one going into my office but myself, I always counterpoise my scales, and they are fixed. I have three in the front office and five in the back, so that they are never moved. My beams have to be taken down only to be cleaned, because my colleagues, the two inspectors, have got their own beams that they take out with them, and also their own standards. I use and have the charge of the beams. I have one beam which takes the 56 lbs. and the 28 lbs.; I have another which takes the 14 lbs. and the 7 lbs.; and the other one takes the 4 lbs. down to the $\frac{1}{4}$ lb. And in my inner office, as I term it, for brass weights, I have a glass partition with a door to it, so that the door is closed to keep the atmospheric air away as much as possible; in that I have five beams all up for use. It is not every day that I have brass weights; it might happen that one day I might have nothing else but brass weights; sometimes all pewter and sometimes all wooden measures. Wooden measures I adjust with seed; you find that in the trial of measures, (it is rape seed that I use), the seed will settle, and I work it in a hopper, for instance, say a bushel or half a bushel. I throw the seed six times into the hopper and let it run out into the measure before I adjust my standard; then I strike my standard, and then turn it into the hopper and then adjust that measure by it, so that there is every accuracy that possibly can be.

1855. (*The Warden of the Standards.*) Have the brass weights that you compare generally been stamped at Founder's Hall?—Always. I do not stamp a brass weight but what has been examined there.

1856. Do you always test a brass weight just as strictly after it has been stamped there?—Quite so, because for this reason: when stamping brass weights, sometimes there is a flaw perhaps, and a piece will drop out after I have stamped them, and in that case I have knocked out the stamp so that the weight should not be used. In stamping in that way a brass weight, I found there was a little shoulder about the size of a 2*s.* piece; I knew that the weight had not been properly made; it was light, and they had put this little plate in and turned it round, but if we stamped it on the other side, it knocked it out. As I said, it was very wrong to send weights out like that, for this reason: a shopkeeper might have got that weight, and there it was duly stamped, and this little thing might have dropped off, and something might have been sold by it, they never thinking that it might have come out of the weight, and the inspector going in directly would discover it light, and the man would be summoned directly for it.

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1857. (*Chairman.*) Do you ever weigh by the method of counterpoise, that is to say, first counterpoising the standard, and then removing it and substituting in the same pan the weight to be compared?—Yes, that is for accuracy.

1858. Do you generally find the new weights accurate when sent to be stamped?—Sometimes they will come light, and other times they will come a little heavy. I allow just the turn of the balance, because, in using brass weights, if you do not give them some little advantage, they so soon become light.

1859. You require them to be a little heavy?—Just to draw what we term the cock of the beam.

1860. Do you reject many weights and measures sent for comparison?—In the course of the year I have done so.

1861. What proportion do you suppose of the whole do you reject?—Sometimes I might send away, perhaps, a dozen, or a couple of dozen, at the same time.

1862. Do you refuse 1 per cent. of the whole?—Yes, about that; not more than that, because since I have been in the office, I have been so very particular with it. I have returned their weights and their measures, so that that has made them a little more cautious.

1863. Do you compare earthenware or glass weights, or do you ever stamp any of such weights, that is to say, weights other than those of iron, brass, or gun metal?—Not any; nothing but iron weights, and brass, including gun metal. We stamp no porcelain weights, nor yet glass, and in measures I stamp pewter, copper, and tin, because oil measures are made of tin, and they are used very much now for petroleum.

1864. (*The Warden of the Standards.*) You always refuse to stamp porcelain weights, do you?—Yes.

1865. But they are stamped by other inspectors, are they not?—They are stamped in the country, but I object to it; I go strictly by the Act of Parliament. There is another thing to which I would draw the attention of the Commission. Last Saturday week I had a bushel, a half-bushel, a gallon, a half-gallon, and a quart iron measures for seed, with the gallon, the half-gallon, and the quart galvanized. I stamp iron measures for Billinsgate Market; they are used for perriwinkles, muscles, cockles, and that sort of small shell fish, because the salt water has such an effect upon wood that it bulges and splits it. But iron corn measures I certainly object to. This person who brought them told me that they are stamped in Middlesex, and he could get them stamped there. Then I said, "You must do so. I refuse to stamp "them here, because the Act of Parliament says they "shall be of wood and iron, and the most accurate "measures." I do not see that iron can be so accurate. Wood and iron are more accurate than iron, and can be kept more so. Indeed, I have had to examine and re-stamp once a year what are technically called the "upland bushels," used by the large maltsters up the Thames; and some of those measures, made of wood and iron, and called meter measures, I know have been in use these 20 years. Therefore that gives me proof that wood and iron are certainly better materials for corn measures.

1866. (*The Warden of the Standards.*) That is a measure like the one on the table?—Yes; that is just the description. This is what we call the little drum, but the meter of course is a very large measure. Then there are three of the bushels; there is what we call the meter bushel, the farmer's bushel, and the drum bushel.

1867. What is the distinction as to the meter bushel?—That is like the standard, but those other two bushels are made for convenience to avoid filling the sacks or moving them from place to place, or something of that sort; still they all hold the same quantity.

1868. The difference is in the form?—Yes, the difference is only in the form.

1869. Do you act entirely under the Act of the 5th and 6th of William the Fourth, the general Act?—Yes.

1870. Or is there a private or local Act for the City of London?—I do not think that there is; the only thing that there may be in the City of London, is that we require our own stamp upon weights and measures used in the city.

1871. (*Chairman.*) You do not like weights and measures to pass with the stamp of anywhere else?—No, not if used in the city.

1872. Do they have to come to you to be restamped?—Yes, because for this reason; our inspectors say, "You had better take them on to Guildhall, and give "them a chance of being corrected." They would not try them, because if they did and found them incorrect, it would be their duty to seize them; and they consequently come to my office, and then I compare them with my standards.

1873. (*The Warden of the Standards.*) Do you act under the inspectors?—No, not at all. I have nothing at all to do with them, nor they with me.

1874. The Act of Parliament says that the inspector is to perform those duties?—Just so; but it appears that in the City of London we are different. I am the stamping officer of the corporation, and the inspectors are the officers appointed under the 5th & 6th Will. 4th., that do the out-door duties. I have the work to do in the office, and their duty, as it appears to me, is merely to go round continually and to see that the weights and measures are correct.

1875. Then the practice is not strictly according to the Act of Parliament, because the Act of Parliament says that the inspector is to perform the duty of comparison?—"Or some other authorised per-"son." I think you will find that those are the words in the Act 5 & 6 Will. 4th, cap. 63. sect. 27.

1876. The words of the 21st section of the Act of 5th and 6th of William the Fourth are "that all "weights and measures . . . shall be examined "and compared . . . by such inspectors, who "shall stamp, &c." There may perhaps be some previous Act still unrepealed or charter under which you may act?—Yes, that may be so.

1877. It does not appear in the Act of the 5th and 6th of William the Fourth, under which the present system of inspection generally is established, that there is any provision by which any other person but an inspector can compare and stamp weights and measures?—I was not aware of that.

1878. (*Chairman.*) Do you ever compare and stamp any weights or measures of other denominations than the official standards?—None whatever.

1879. Do you compare and stamp troy weights?—Yes, when any troy weights come in I compare them with the standards and stamp them.

1880. Do many of them come in?—Sometimes, but not a very great quantity.

1881. Have you considered the provision of the law whether they do not require troy weights to be stamped and inspected as much as avoirdupois weights?—They are not so much in use.

1882. Where they are in use is there any reason why they should not be stamped?—I think not.

1883. Is there anything in the law to exempt them?—I believe not. I think they ought to be under the same regulation as avoirdupois weights.

1884. Have you ever been asked to compare or stamp metric weights?—No.

1885. No application has ever been made to you?—Not any, but I have had a metric measure brought.

1886. Are you aware that the Commission have recommended that metric weights and measures should be allowed to be used in this country, metric standards being provided, and copies to be provided to inspectors when required?—I have heard of such a thing.

1887. In the event of this recommendation being carried out by law, do you think that confusion and public inconvenience would arise from there being three different concurrent systems of weights and

corresponding standards?—My humble opinion is that I think there would be.

1888. You would have metric and avoirdupois concurrent and also troy in use for certain purposes, do you think the fact of having three systems would be more inconvenient than if there were two, and do you think that the fact of troy weight being also in use would make it more inconvenient than if there were only metric and avoirdupois?—It would cause no doubt great confusion at first setting off, but at the same time I think it would soon come into working.

1889. You would never have troy, avoirdupois, and metric weights all used for the same description of goods?—No, I suppose not.

1890. You would have the troy weight and the metric weight, I suppose, for one sort of thing, and the avoirdupois and the metric used for others?—Yes, I suppose the metric weights would be used for the French houses.

1891. Do you test and stamp many measures of length?—Yes, a great number of yard measures.

1892. What description of material are they?—Of lancewood generally.

1893. Are they not made of boxwood?—No; they were made originally of boxwood, but lancewood is very much preferred; but unfortunately in consequence of what has happened now in Cuba, they cannot get lancewood, consequently they are using beech. There are no lancewood poles coming home, and the makers of yard sticks cannot get lancewood.

1894. Does lancewood grow only in Cuba?—That is the best place for it.

1895. Do you know any reason why measures of length other than the yard used for trade purposes of buying and selling should not be tested and stamped; for instance the subdivisions of the yard used in the sale of silk, woollen, cotton goods, &c., and the foot and its multiples, and subdivisions used in the sale of various articles such as timber, sheet glass, gutta-percha, and india-rubber, &c.?—None at all.

1896. (*The Warden of the Standards.*) You stamp nothing but the yard itself?—Nothing but the yard measure.

1897. Do you look at the sub-divisions at all?—Yes.

1898. Do you test them at all?—No, there is no division on the standard yard.

1899. But there are generally divisions on the yards that are stamped?—That is what we call figured sticks, but there is a plain stick, and what we call plain sticks have only got ½ yards, ¼ yards, ⅛ths, and so forth. With the ordinary flat rules they have inches, quarters, and eighths, and everything.

1900. Do you stamp a yard measure when it has got those sub-divisions on it or not?—Yes.

1901. You never look at the sub-divisions; that is not part of your business?—I have no test respecting them.

1902. Do you test brass or iron measures?—Yes.

1903. (*Chairman.*) Have you considered the expediency of requiring by law that all weights and measures when sold as such, for instance, two and three foot rules divided into inches, should be previously compared and stamped by the inspector as a certificate of their accuracy and proper construction?—I think so; I have had to try a link chain for measuring ground. There was a party bought a 60 feet one for a surveyor to measure some ground with; the ground was worth something like 1,000*l.* an acre, and when he came to measure this ground after the other parties he found that there was something short, and we discovered that was in consequence of this chain of his being two inches shorter than 60 feet. Then I adjusted it by drawing it out with an iron standard rod that I had.

1904. (*The Warden of the Standards.*) If there was a standard chain made for this department, and copies supplied to inspectors, do you think you would be called upon to compare or stamp any chains in use?—If I was called upon so to do I should, of course.

1905. If you were provided with a copy of the standard chain do you think you would have much business in comparing and stamping chains?—I do not know whether I might or might not, if it came into use that they were to be stamped.

1906. You do not know to what extent they are used?—No, I do not. I should think it is very extensive now; with the alterations that are going on, they must use those chains much more than they formerly did, I should imagine.

1907. (*Chairman.*) Is there anything you would wish to state to the Commission beyond what has been asked you?—No, excepting this point that I was speaking about with regard to those iron measures. I should like to know whether the Commission think that I was quite right in refusing to stamp them, and I thought I would ask the question to-day.

1908. You said you thought they were not fair measures?—I do not think they are so durable as the wood and iron ones.

1909. And you declined to stamp them?—I objected to stamp them.

1910. (*The Warden of the Standards.*) That really involves the construction of the Act of Parliament, does it not? Do you not think that it would be expedient that general official instructions should be given to all the local weights and measures officers as to the construction of the law, so that their duties should be generally performed in a uniform manner?—I think, perhaps, it would be as well that there should be no difference in the stamping of weights and measures.

1911. Would not that be the best way of meeting any similar difficulty to that which you have now spoken of as to iron measures?—I think so; it strikes me that it would do away with those difficulties. I have had tin measures, for instance, brought to me with an index outside, saying that it marked a quart, a half-gallon, and a gallon, and they have had an index too inside, and I have objected to them because they were three measures in one.

1912. Was that a wooden measure?—No, a tin measure.

1913. (*Chairman.*) Was your objection that you would have had to stamp separately the three measures, or that you would have to stamp a gallon and each of the three sub-divisions?—I could not well do that.

1914. It might have been correct with the gallon but incorrect with the sub-divisions?—Yes, incorrect as to some of the measures.

1915. Therefore you objected to stamping it because it would not appear whether the stamp vouched for the one or the other?—Yes.

1916. (*The Warden of the Standards.*) And you had no means of testing the smaller divisions?—Not accurately. I had a machine that was brought to me, and I took it up to the late city solicitor. It was a very nice machine, made for petroleum; there was a tap at the bottom and also one at the top, and there was a glass index; so that if it was a pint, a quart, a half-gallon, or a gallon, they would go to the vat and put this tap to it, and they could see outside where it came to; but the city solicitor said that I could not stamp it.

The witness withdrew.

Adjourned to Wednesday next, at 1.30 p.m.

Wednesday, 14th July 1869.

PRESENT:

LORD COLCHESTER IN THE CHAIR.

LIEUT.-GENERAL E. SABINE, P.R.S.
PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

Mr. James Strugnell.

14 July 1869.

MR. JAMES STRUGNELL examined.

1917. (*Chairman.*) Your are an inspector of weights and measures?—Yes.

1918. Is your district one of the districts in the county of Surrey?—Yes.

1919. What district is it?—A. West Metropolitan district.

1920. What does it include?—It includes the parishes of Lambeth, St. George's, St. Saviour's, St. Saviour's Clink, Christchurch, Clapham, and Streatham.

1921. Do you know what the population is of that district?—Nearly 300,000 inhabitants.

1922. Do you know the number of places that you visit?—About 10,000, as near as I can calculate.

1923. When and by whom were you appointed to that office?—I was appointed by the justices of the county of Surrey on 4th April 1865.

1924. Had you any previous knowledge of the duties of your office?—Yes, I was superintendent of police, and inspector of weights and measures in the county of Lincoln.

1925. Was it in consequence of your being superintendent of police that you were inspector of weights and measures?—Yes.

1926. Had you anything to do with weights and measures before you became superintendent of police?—Yes; previous to that I was under Captain Harris in Hampshire, as a police constable, and in that capacity I occasionally went out with the superintendent there, to act as his assistant in inspecting weights and measures.

1927. Do you act under any or what instructions from the local authorities?—I have no instructions, I simply act under the Act of Parliament.

1928. What Act of Parliament do you act under?—The Weights and Measures Act, the 5th and 6th William IV., chapter 63.

1929. Are you not aware of any more recent Act of the present reign?—Yes, there is an Act of the reign of Victoria, but I cannot remember the precise date of the Act.

1930. Are you provided by the authorities with copies of the Acts for your use?—No, I provide them myself.

1931. Has your attention been drawn to the provisions which relate to your duties?—No.

1932. You have made yourself acquainted with the provisions relating to your duties?—Yes.

1933. Do you execute all the duties yourself, or have you any and what assistance?—I have two assistants, one who visits the shops with me, and has to give evidence before the magistrates, and the other for the purpose of taking care of the weights and scales and the horse and cart.

1934. Are those assistants appointed by you?—Yes.

1935. Are you paid by salary, or have you any other emoluments?—I am paid by salary and emoluments also.

1936. Have you any share of the fees on convictions?—I receive one half of the fines, nothing more.

1937. What is the annual gross amount that you receive?—About 450*l.* or from that to 470*l.* including everything.

1938. What disbursements have you to discharge out of that gross amount?—I have my assistants to pay, and the two assistants cost me about 85*l.* a year. Then I have a horse and cart, and an office to find for stamping.

1939. What do you put the disbursements at altogether?—From 160*l.* to 170*l.* a year.

1940. What is your average annual net remuneration as inspector?—Nearly 300*l.*

1941. As to false and defective weights and measures and balances seized and condemned, what becomes of the proceeds of their sale?—They are sold by an officer of the county, and the amount is paid to the treasurer; I derive no benefit whatever from it.

1942. When you are inspecting weights do you ever weigh by the method of counterpoise, that is to say, first counterpoising the standard, and then removing it and substituting in the same pan the weight to be compared?—Yes, frequently.

1943. What is your practice as to the reverification from time to time of stamped weights and measures; if you find them correct, do you restamp them and charge a fee?—No.

1944. If they are incorrect do you adjust them, or what do you do?—I never adjust any weights or measures.

1945. You never either restamp or adjust?—No; if they are once stamped, and the stamp is perfect, and they are correct, I do not restamp them.

1946. And you charge no fee?—No.

1947. And you do not adjust them for nothing?—I do not adjust weights and measures.

1948. Do you generally find new weights accurate when they are sent to you for comparison?—No, not altogether; I am often obliged to call upon the weight and scale makers to adjust them.

1949. Do you reject many weights and measures sent to you for comparison?—Yes; for instance, if the lead is not properly run, I reject them. I now and then find the measures which are sent to me for the purpose of stamping rather too large, and on several occasions I have had them too small, and those of course are sent back.

1950. The Commission have had before them a communication from an inspector of weights and measures from Bath, who never adjusts, nor receives any portion of the fines. He states that it is his practice to require all weights and measures to be brought to him for examination, at least once in a half year, and when correct he stamps and gives a certificate of their correctness upon a printed form. In the course of his subsequent inspection, if he finds such weights and measures to be defective from fair wear and tear within the half year, he merely cautions the shopkeeper to have them readjusted, and restamped, else he will be informed against, and he declares this system to work very satisfactorily to all parties. What is your opinion of a system like that?—I think that it would be a very fair system. It is always more pleasant for an inspector to caution, if a caution will do, than to summon a person.

1951. He stamps them every time as correct when they are brought to him every half year, as far as I understand, and charges a fee. Do you think that desirable?—No, I do not think that stamping every half year is advisable.

1952. If it has got wrong he can at once tell whether it is fair wear and tear within the six months, or whether there has been any fraud, can he not?—Yes; possibly he may. But by entering the

persons' names alphabetically he could always tell whether any particular person had his weights adjusted according to order, without re-stamping them.

1953. But I suppose that the convenience of that mode is, that without a book-keeper, who of course must be paid, the inspector can at once see whether it was stamped within the half year?—Yes; but sometimes I have weights with very little lead indeed in the top; the stamp almost covers the whole of it.

1954. Are you speaking now of very small weights?—Yes, say from ¼ lb. to 7 lb.

1955. There must be a great deal of lead, must there not, to enable them to be stamped over and over again?—Yes, there must be a fair amount.

1956. (*The Warden of the Standards.*) Do you obliterate the old stamp when you restamp a weight?—I never do restamp; I never put the parties to the expense if the old stamp is legible.

1957. Does the stamp show the date of the year?—No.

1958. Would there be any difficulty in establishing a regulation that there should be a stamp with the date of the year on each weight?—I should think that system would work very well.

1959. (*Chairman.*) Do the fines that you receive about pay your expenses?—I think a little more. I consider that I have a little left out of the fines after the expenses are paid.

1960. What is your practice as to the allowance of error or draught on weights and measures sent to you for comparison?—For instance, in a 56 lb. weight I should allow about 3 drams, and so on in proportion, because if I have new weights brought in and put upon the board in my office, when one is removed you can always tell where it has been in consequence of the sand dropping off; therefore if we were to stamp a 56 lbs. weight exactly as our standards are, it would become light perhaps in less than a week, or very likely before it got home, I consequently allow it a draught.

1961. You would not allow it to be any lighter?—No, certainly not; I allow about three drams in a 56 lbs. weight, and so on in proportion. For instance in a 7 lbs. weight I should just give the draught, and so on downwards.

1962. Do you require a weight to be re-adjusted if it is at all defective or too light?—Yes.

1963. Do you compare earthenware or glass weights, or ever stamp any such weights?—No; in fact I have very few of them in my district.

1964. (*The Warden of the Standards.*) Do you refuse to stamp them?—Yes; I have had pewter measures with glass bottoms, and those I stamp.

1965. (*Chairman.*) Have you any regular system laid down for the district that you visit?—No; I work according to my own discretion.

1966. Have you no particular fixed system that you could mention to the Commission?—Only with respect to seizures, and under the following circumstances. If I receive information that a certain person is supplying his customers with short weight, I send a person to see if that statement is correct; and if I find that they supply me with short goods, I make an official visit, and then I should seize a weight with a considerably less amount of deficiency than I should under any other circumstances, because I know that they are cheating the public.

1967. Have you any system as to how often you visit?—Some districts I visit a very great deal oftener than others.

1968. What is the average number of shops that you visit in a day?—About 200 or 250.

1969. Is that a large number when you give your whole time to out-door inspection?—No, I generally leave my office about nine o'clock, and return again about two. I consider that the busiest part of the day.

1970. Do you make much difference as to the different classes of shops, that is to say, do you consider that some require to be inspected much oftener than others?—Yes.

1971. I suppose wholesale houses and large wharves and warehouses you do not go to so often?—No, I do not.

1972. With regard to publicans and chandlers' shop, and those kind of shops, how often do you go to them in the course of a year?—In some districts I go about every month, in others I may let them go three or four months.

1973. In small retail trades do you find it necessary to look after them more sharply?—Yes; and the poorer the district, the more frequently I visit.

1974. Do you inspect many weights and measures and balances in open places or places other than shops?—Yes, I do occasionally in the street.

1975. Do you find in the case of people who sell fruit in the streets that their measures are very defective?—Yes, sometimes, but not so defective as one might think.

1976. Do you find, for instance, false bottoms very often to measures?—I have heard of them, but I have not found one myself.

1977. As compared with other people, you find that they are not much worse than their neighbours?—No, not much. I have occasionally found their measures very much battered up at the bottom.

1978. Do you know Mr. Vousden, the wholesale confectioner in Union Street, Borough?—No.

1979. He has stated that he did not have a visit from the inspector for 17 years, and his house is within two minutes' walk of the stamping office of the county of Surrey; do you know anything about that?—That was my predecessor, Mr. Wade's office; my office is a mile from the office that this person alludes to.

1980. Do you know Mr. Pratt, a ham shop-keeper in Stockwell?—Yes, I know him.

1981. He stated that he did not have an inspector call on him for 20 years, but he was since summoned to appear at the Sessions House on the 16th of June this year, to answer the charge of having two small tin tacks of draught to his scales on the counter, and the spire of his beam an eighth of an inch out of the upright; was that in your district?—Yes; that was in the Clapham Road.

1982. Is it true that for 20 years he had not been inspected?—As far as I am concerned it is not true, for I have never passed Mr. Pratt's shop, when I have been in that district, without going in, and I am satisfied that, in the four years since I have been appointed, I must have visited his shop at least eight times, therefore his statement is not correct.

1983. You do not know, I suppose, what the previous inspector did?—No, I do not.

1984. What was the result of his being brought up; was he convicted?—Yes, he was fined 1*l.*

1985. What was the nature of the incorrectness; had he added a weight to the standard?—No; it was a scale with a balance ball, and at the time of my visit it was 4½ drams against the purchaser; I then allowed him to wipe it out, and then it was 3 drams against the purchaser. This balance ball he might have altered himself, if he chose; in my presence it was altered; how many tin tacks he put in, I do not know. I should consider it rather close to take a case, if it was, say a cheesemonger or any heavy trade, but this person sells cooked ham for which he charges 2*s.* 4*d.* per lb., and that makes a considerable difference.

1986. Does not ham make the scale incorrect in a short time; does not it dirty and moisten the scale?—Just a trifle, but not much.

1987. Does ham make a scale less incorrect than cheese?—No; but it is a much dearer article.

1988. And the spire of his beam was out of the upright?—Yes, in consequence of there not being sufficient weight in his balance ball.

1989. Of the other person, Mr. Vousden, you know nothing?—I cannot remember how many times I have visited him; but this is what I term in my

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district a sweetmeat shop, and I believe it is in the wholesale way. I do not very often pay them a visit; but I have visited this particular person.

1990. You do not know anything about him, whether you found his weights and measures correct or otherwise?—No, I do not remember, but they would be pretty correct, or he would have been summoned, and I have not summoned him.

1991. Have you met with any metric weights and measures during your inspection?—Yes, and I have made a seizure of one lot; they were at a furrier's in the Borough.

1992. Were they used for the purpose of sale?—Yes, I found them on a counter with a quantity of other weights, avoirdupois weights.

1993. Do you think that they had been passed off as English weights?—I think they might have been, and this person both bought and sold.

1994. Would you always seize metric weights if you found them under those circumstances, if you had any reason to suppose that they were used for sale?—Yes, but that case was brought before our magistrates and dismissed.

1995. (*The Warden of the Standards.*) Was that the case that you represented to me, and upon which the Board of Trade took the opinions of the law officers of the Crown?—Yes.

1996. Have you had any other case of the kind since?—No, I have not. We had orders from our chairman not to interfere in any of those cases.

1997. Were those orders given before you represented it to me, and before the opinion of the law officers had been taken?—Yes.

1998. Did you receive any other instructions afterwards, or was any notice taken of it by the magistrates, so far as you are aware?—No; in fact I did not lay the opinion of the law officers of the Crown before the magistrates, in consequence of having very few metric weights in my district.

1999. What bench was this?—The Newington bench.

2000. (*Chairman.*) You are not the inspector of the Newington district, are you?—The district is divided into two parts.

2001. Do the magistrates meet at Newington?—Yes; it is what is termed the Newington division.

2002. Does the Newington division include the whole of Southwark and Lambeth?—I think there are 14 parishes in the Newington division.

2003. Have you met with any weights or measures other than those denominations for which there are official standards, or any so-called local or customary weights and measures?—No, I never have come across them at any time in my district.

2004. Do you experience much difficulty or annoyance in the execution of your duties of inspection?—No, very little, only on one occasion.

2005. What sort of trade was that in?—It was a ham and beef seller.

2006. Did he resist the inspection?—Yes; I visited his shop about half-past nine on a Saturday night. He asked me for my authority, and I produced it—that was after I had examined his weights and scales. I had found them correct, and I was then leaving the shop, and he detained me there for about ten minutes, and sent for a policeman. It happened to be a young constable, and he almost took me to the station.

2007. Did not the constable understand that you were the authorized inspector?—No; I was detained there ten minutes, and a mob of about 300 or 400 got round the shop. I mentioned this to our magistrate's clerk, but we could not see our way clear to summon the man, because I had made the examination. It was a detention, and that was all.

2008. Is that the only occasion on which you have met with any difficulty?—The only occasion. I generally find them civil.

2009. What is your practice as to the errors of weights, measures, and balances, that you seize as defective or make the subject of informations; what allowance do you make?—It all depends upon the trade which the person carries on.

2010. Do you mean according to whether it is a trade in which they easily get out of order, or the contrary?—Yes. There are some trades in which I should look over a deficiency of half an ounce.

2011. What sort of trade would that be?—Such as a wholesale grocer, or a cheesemonger, or any other wholesale dealer, if the goods they sold were not very expensive.

2012. The loss to the customer would be as much in that trade as in any other, would it not?—But they generally sell in large quantities.

2013. For a retail grocer you would not allow anything of that sort, I suppose?—No. There are some poor districts where they sell as small a quantity as an ounce, and in those districts I should not allow them a quarter of an ounce in their scales.

2014. (*The Warden of the Standards.*) What is your practice as to weights?—I should not take a weight, unless it was under very particular circumstances, under half a dram deficiency, from a grocer's or a chandler's, or any shop of that description.

2015. As to measures of capacity, what allowance do you make in them?—With respect to measures, if there is deficiency of an ounce or so in a quart I seize it, and so on, that is to say, in measures which publicans or beer-house keepers use.

2016. You test liquid measures by water, do you not?—Yes.

2017. How do you test dry measures?—I test dry measures with seed.

2318. Do you ever test them by measurement of the diameter and the depth?—Yes, I have done so with a rule, but I never seize under such circumstances.

2019. (*Chairman.*) You never would allow as much as 2 ozs. in a 56 lb. weight, would you?—No, I should not. I should seize for 2 ozs.

2020. Should you seize for 1 oz.?—Yes, I should, under certain circumstances.

2021. Have you found any difficulty arising from the provision of law by which you are empowered only to inform against persons using or possessing false or defective balances, and not to seize such balances in shops. You cannot seize a balance, can you?—No; we are not empowered to seize balances in shops.

2022. Do you find any inconvenience from that?—No; I think it would be a very bad plan to empower us to seize balances.

2023. What is you reason for thinking that?—As to shops in busy neighbourhoods I will instance a butcher's; his shop may be full of meat on a Saturday night, and if we take his scales away for half an ounce we deprive him of the power of selling any more meat.

2024. But you would take his weights away?—Yes, he can borrow some more weights; but it is not so with a weighing machine, because on the Saturday night all people are using their machines; but not so with weights; most tradesmen have a few extra weights in their possession. Then again, if we were to find his scales half an ounce or three quarters of an ounce against the purchaser, it is 100 to 1 if we could keep and produce them in the same state before the magistrate, and that would cause confusion.

2025. But do you think that the law ought to empower you to seize those false balances where there was anything fraudulent, if not those merely accidentally defective?—There, I think, we should find some difficulty. Our petty sessions are next Wednesday, and I have 21 cases coming before the magistrates. I have four out of those with something under the balances, and one has putty. By this time that has almost dried up, all the oil has evaporated; and the consequence is that it is not so heavy by two or three drams as it was at the time I seized it. Therefore I have to produce this putty before the magistrate, and to state the deficiency at the time I made the visit. Then again, we find coal machines heaped

up, no doubt for the purpose, with small coal under the scoop, and it would be impossible to take that coal machine from the shop and produce it to the magistrates in the same state; we probably should lose some of it on the road. There are also many very large machines, and fixed to a certain extent to the premises; it would be very difficult to remove those if found incorrect.

2026. To what extent are the larger weighing machines, and those with special weights showing a much larger weight on the lever principle, including steelyards, subject to your inspection?—I inspect them occasionally; I cannot inspect very large machines. I inspect steelyards by simply hanging the standard weights on; that is the only means I have of testing them. But the very large machines I have no means of testing.

2027. Have you ever interfered with balances with balance balls?—No, I have not.

2028. Or have you interfered with balances of a peculiar construction, such as balances with special pans for coals?—No.

2029. If you find them correct you do not object to the construction?—No.

2030. Do you think it would be an improvement in the law if the inspectors in Great Britain were empowered and required to detect and inform against all frauds in connexion with weights, measures, and balances, as well as false and defective instruments; for instance, frauds in the method of weighing, as distinct from the balance itself, and frauds in making up beforehand and selling goods in parcels of defective weight on measure?—I think it would be a very great improvement in the law. We have now no means of punishing those parties. For instance, I tried the experiment some time ago of sending out to several shopkeepers, and in many instances I got short weight. I made then an official visit, and I called on the whole number, which was about 30, and there was only one that I summoned, the others had the weights, &c., correct; the one summoned was for having a defective weighing machine.

2031. Are you aware that those powers and duties that I referred to in my last question are imposed by law upon inspectors in Ireland?—I was not aware of that.

2032. But you consider that it would be an improvement?—Yes, I think it would.

2033. In your duties of inspection and in informations laid by you, do you observe a marked distinction between cases of wilful fraud and those where there is no intent to defraud?—Yes. The Surrey magistrates in convicting persons always make a difference; they fine heavily if a wilful fraud is committed, and lightly if there is no intent to defraud.

2034. I suppose in some cases you find things which cannot be explained except by an intention to defraud, and others which arise from carelessness or accidents?—Yes. For instance, when there is a machine with nothing under it, but from mere wear and tear perhaps it would get defective. It is a most astonishing thing that they always get deficient against the purchaser. I seldom or ever visit tradesmen who sell out, but what I find the balance against the purchaser; if I visit a marine store dealer it is generally the other way, against the seller. The marine store dealer buys in, and therefore his weight scale is generally the heaviest.

2035. Do you find much more fraud amongst marine store dealers in that way than amongst others?—I think they are getting more honest than they were.

2036. Do you think it expedient to establish a regulation that in cases where persons are convicted of fraud, or where there is culpable negligence, their names should be publicly advertised?—Yes, I think that that would be a very good plan.

2037. What is your opinion as to the employment generally of police officers as inspectors of weights and measures?—I think it is not a very good plan to mix up the duties; I have had experience of about five years, and I think that if an officer could be appointed to carry out the Weights and Measures Act only, the duties would be better carried out.

2038. Do police officers receive any remuneration for their duties in connexion with weights and measures?—A trifle. In the county of Lincoln I believe I used to receive 16*l.* per annum.

2039. But you also had your salary as superintendent of police?—Yes, that was in addition to my salary as superintendent of police.

2040. (*The Warden of the Standards.*) Is not that an exceptional case?—No, I think not; I think they are all allowed a little. In the county I am in now, the police inspectors of weights and measures are allowed their expenses.

2041. But no more than what pays their expenses?—No more than that.

2042. There is no real remuneration for their duties of inspection?—No; I used to consider that the 16*l.* that I received from the county barely paid my expenses. It was paid as a salary, but it barely covered my expenses.

2043. Do you think that the ordinary duties of a policeman peculiarly qualify him for inspecting weights and measures?—Yes; I should think so. You will generally find that the superintendents are intelligent, and would carry out the duties efficiently if they had no police duties to perform.

2044. Do you think that it would be a good plan to select the inspectors of weights and measures from amongst the police, but to relieve them from the ordinary duties of police, so that they may be able to give up the whole of their time to the inspection of weights and measure?—Yes. I think if that could be practically carried out it would be a great benefit, but at the same time I should think that the best plan would be to place the inspectors of weights and measures under the chief constables of the counties.

2045. (*Chairman.*) What reasons have you for that opinion?—I am speaking now of constabularies only; I think that if they were taken from the police force, the chief constables would take care to select good men, and they would see that they carried out their duties properly.

2046. You would transfer the appointment, in fact, from the magistrates to the chief constable?—I would not lessen the authority of the magistrates in any way. Police officers who perform the duties of inspectors of weights and measures are always selected by the chief constables, and sworn in by the magistrates.

2047. But at present they are appointed by the magistrates also, are they not?—Yes, in the metropolitan districts, the inspectors are appointed by the magistrates.

2048. Are they appointed by the chief constable in the country districts?—They are selected by the chief constable, and taken to the quarter sessions and bound over by the magistrates in the sum of 200*l.* properly to perform their duties.

2049. Is not their appointment confirmed by the magistrates?—Yes, all police appointments are confirmed by the magistrates.

2050. (*The Warden of the Standards.*) Might not there be a regulation that they should still continue to be police officers, and liable to be called upon to perform police duties on extraordinary occasions, whilst they were inspectors of weights and measures?—Yes, I should see no objection to that.

2051. In that case, where several inspectors of weights and measures were employed in the county, they would be under the general authority of the chief constable?—Yes, they would.

2052. And it would be sufficient, would it not, in any official communication on the subject of the inspection of weights and measures, to communicate with the chief constable only?—Just so; you would get all your information from the chief constable direct. Then there is another difficulty in a county, particularly in the county that I come from, which is a very extensive one. In order efficiently to carry out the duties there would be required a number of

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inspectors. The district that I inspected was 26 miles across.

2053. (*Chairman.*) Did you not find it very difficult to attend to the ordinary police duty, and also to the inspection?—At times I did; for instance, I might advertise, or rather the chief constable would advertise according to the Act of Parliament, that the inspectors would attend at a certain place at a certain day for the purpose of stamping any weights and measures that may be brought. What I am about to name did not very often occur, but still it did occasionally. Perhaps in the morning when ready for starting, one of the men might bring in a report of a serious robbery, and consequently one duty or the other must be neglected; either the stamping of the weights and measures must be neglected, or the case of robbery must be placed in the hands of a subordinate officer.

2054. Considering the peculiar nature of the existing duties of the inspectors of weights and measures, that they require practical experience, skill, and accuracy for the proper comparison and verification of weights and measures, and that the office is always rather an obnoxious one, do you think, with your knowledge of the subject, that as a general rule these duties can be efficiently performed where the inspectors receive no special remuneration for them?—No; I think that they ought to be properly paid.

2055. You, in fact, only received 16*l.* in Lincolnshire as inspector?—Only that; and that 16*l.* hardly paid my expenses.

2056. Of course a man would consider that the duties he was paid most for, would be those that he was most bound to look after?—It is generally so.

2057. (*The Warden of the Standards.*) In which riding of Lincolnshire were you employed?—In Kesteven. I was first appointed in 1865; I was then removed to a first-class station at Spilsby in Lindsey.

2058. I observe that at the present time in Lincolnshire, there are 14 superintendents of police who act as inspectors of weights and measures?—Yes, I believe that is the number.

2059. Do you know whether that is sufficient, or whether they have only a small portion of their time employed in the inspection of weights and measures?—Only a small portion of their time is employed in that way. For instance, I should think one day a week is as often as each inspector is employed in inspecting weights and measures.

2060. From your experience with regard to Lincolnshire, supposing that as inspectors of weights and measures they had to give up their whole time to their duties, how many inspectors do you think would be sufficient for the whole county?—I should think that you could not very well do with less than about six or seven. As I said before, Lincolnshire is very extensive, and I should think at the least you could not do with less than about four in Lindsey and two in Kesteven, and one in Holland, to carry it out efficiently.

2061. That is just half the number that are now employed?—Yes; I should think with seven it might be done well.

2062. (*Chairman.*) Have you ever considered whether the practice adopted in France of separating the duties of comparison and stamping weights and measures and the duties of the inspection of weights and measures used for buying and selling, and assigning these separate duties to distinct officers of verification and inspection, the latter being undertaken by the police, would be expedient in this country?—No, I think not. The only thing that would be beneficial would be to allow the stamping to be done for the whole county solely by one man, not making any distinction in the district. You see there is one very objectionable thing against stamping in my district, and it is the same in most of the Metropolitan districts. Every shopkeeper knows that I must be in my office twice a week between the hours of 11 and 3; when there, of course I cannot inspect my district, and therefore if a person chooses to act dishonestly in the four hours that I am stamping, he can do so without any hindrance whatever.

2063. (*The Warden of the Standards.*) With regard to the original comparison and stamping of new weights and measures, are there many places in a large county where an officer of that kind would be required? Would it be sufficient, for instance, in a county like Lincolnshire, to have only one place to which all should be sent?—No, you would never get them all in one place, and I should think if it was connected with the police (and I cannot see a better way than for the police officer to do it, but to do it as his exclusive duty), you would want at least as many places for stamping as you had inspectors.

2064. Are there many places in Lincolnshire where weights and measures are actually made?—I do not believe that there are any; at least I do not know of one.

2065. If there are no weights and measures actually made in Lincolnshire, could you have much business in comparing and stamping new weights and measures there?—No, not a very great deal; it is principally old ones that are repaired, and the old ones are generally done in small towns by such persons as gas-fitters or ironmongers. If there is a handy man in a town, he will take to the repairing of weights and measures. But as to weight and scale makers I do not know of any, unless it is in the city of Lincoln, and even there I do not believe that there are any makers. Weights and measures are sold in country places principally by ironmongers.

2066. That is to say, after they have been stamped?—Yes; and ironmongers, for instance, on a stamping day will send up a great number of weights.

2067. Does not he keep them in stock already stamped?—Yes. He will send up perhaps so many sets to the district inspector to stamp; he will then take them back to his shop and sell them to his customers ready stamped.

2068. Are they not stamped when they are supplied to him by the manufacturer?—No, I do not believe they are; I never knew an instance of it.

2069. Are the weights generally sent to those ironmongers in a rough state, and do they adjust them themselves?—Yes, that is the common practice, I believe, in all counties.

2070. And therefore they cannot be stamped until they are adjusted?—No.

2071. Have you found much difficulty in country places with regard to shopkeepers getting their weights properly adjusted?—Yes, they are not very well done, they are very queer indeed, some of them, what I would term bungling. In the case of an iron weight that I should not pass here in London, they sometimes will load it up upon the top with lead in a very objectionable manner.

2072. (*Chairman.*) By whom is that done?—That is generally done by either the ironmonger or the gas-fitter.

2073. In some cases the inspector himself undertakes to adjust those weights, does he not?—Yes, but that was never allowed in the county of Lincoln by the chief constable.

2074. In some cases he sets up a little sort of tinkering shop, does he not?—Yes; but I think that that is very objectionable.

2075. (*The Warden of the Standards.*) Do you think that you require any new regulation by law as to the adjustment of weights and measures?—There is one alteration which I think might be made; I have one particular weight and scale maker in my district who brings weights to me in the rough state to be stamped. I have with me two of these weights to show to the Commission. He will bring them in the same state as he himself receives them, that is to say, from the founder, and after he has run the lead in in this way (*producing an ordinary cast-iron weight adjusted with lead, and the surface as left by the casting*). If properly adjusted we should stamp them as correct. Then he will go home and japan

the weight over, thus (*producing a similar weight japanned*), and consequently make it considerably heavier than when it was stamped. They have a particular motive in this, because most of our weight and scale makers contract with the shopkeepers for keeping their weights in order, so much by the year; and the longer they can keep them without alteration the better for them. Therefore it is to their advantage to make the weights rather heavy, if they can, and to the disadvantage of the person who uses them.

2076. (*Chairman.*) What should you say when you found a weight of that kind japanned too heavy. Should you at once seize it?—No, because although it is japanned all over it would not weigh more than about half a dram heavier; therefore on finding a weight heavy like the one produced I should not seize it, but should caution the person.

2077. (*The Warden of the Standards.*) Is it a common practice for you to stamp rough iron weights?—Yes, similar to the one produced.

2078. What proportion do you think of the iron weights that you stamp are rough iron weights?—For instance, all the large stores by the water-side use rough iron weights. I should not think that you would find in my district by the water-side one hundredweight varnished; and therefore I should think that in every 20 weights that I have brought for the purpose of stamping, there would be 5, perhaps, in that rough state, or about 25 per cent.

2079. Do you think that you require any regulation of the law to meet such a case as you have mentioned; for instance, a regulation that all iron weights should be japanned?—No, I think not; because if you sent a japanned weight to a person who used it rather roughly, such as those large storekeepers by the water-side, the varnish would soon get knocked off, and then the weight would become light. So that I think that they are better, for their use in the state that they come from the founders.

2080. Is it not clearly an irregularity that the weight itself should be altered after it has been stamped?—Yes, it is decidedly wrong; but then there is no way that I can see of punishing the person who alters it.

2081. Do not you see any means of preventing it?—No, I do not.

2082. (*Chairman.*) Do you consider that the French regulation that the officers for comparing and verifying weights and measures should be engaged in no other employment, and that the districts of verification should be arranged so as to occupy the whole time of every such officer, is a good regulation, that is to say, an officer for verifying and comparing distinct from the inspector?—I think that would be a good thing.

2083. Do you think it would be a public advantage that in all new appointments of local officers for comparing and verifying weights and measures, there should first be an established test examination as to the qualifications and competency of the person to be appointed?—I think it would be better; I think that they ought to undergo a certain examination.

2084. What sort of examination would you require?—I should think that if there was any person that was thoroughly acquainted with the inspection, such as an old officer, a month's probation perhaps with him would be sufficient.

2085. Do you not think that they should be examined beforehand in the same way as people are now examined for other civil appointments?—I consider that there is not a very great amount to learn.

2086. You think that there is no examination which could very well test their fitness for the appointment?—I think not. I think anyone, if he had a general knowledge of the inspection of weights and measures, he would do the duties very well.

2087. Do not you think that his general knowledge could be tested in any way?—It would not be a bad plan I think for them to undergo an examination to a certain extent as to what they may know about weights, scales, and measures.

2088. (*The Warden of the Standards.*) A policeman before he is appointed has to undergo an examination, has he not?—Yes.

2089. (*Chairman.*) What does that include?—Reading and writing, according to the grade he gets. For instance, a constable has to go through a certain examination before he gets to be serjeant in reading, writing, and spelling, and also on his appointment from serjeant to inspector he has to take the charges, for instance, the night charges and day charges, or anything that might be a test of his efficiency in working and so on. For the appointment of superintendent it is a more strict examination.

2090. (*The Warden of the Standards.*) Of what grade are the policemen that are generally appointed as inspectors of weights and measures?—The superintendents of police.

2091. And they have already had to undergo a strict examination?—No, not as regards the inspection of weights and measures, but they have had a strict examination to undergo as to their general qualifications to get to be superintendents.

2092. (*Chairman.*) Do you see any reason why the inspectors should not compare and stamp gas meters as well as other measures of capacity?—If that was done they would somewhat neglect the other duty. I think that in that case the districts ought to be lessened.

2093. Do you think that that would impose an amount of duty upon them which would be unmanageable?—I think so, unless their districts were lessened.

2094. Do you apply that specially to your own district, or are you speaking of the country as well as London?—I think that it might be done in the country, but not in the metropolitan districts.

2095. (*The Warden of the Standards.*) Practically speaking there is hardly any inspection of gas meters. At present the duties of inspectors of gas meters are confined to comparing and stamping gas meters at their own office, could not that duty be imposed upon the inspectors of weights and measures just the same as comparing and stamping other weights and measures?—Yes, I think that may be done; but as I said before, if it was done the districts would want lessening; where an inspector has 300,000 inhabitants in his district he has quite sufficient to do to inspect the weights and measures without having any other duties imposed upon him. But if an inspector only had 150,000, or from that to 200,000, he might undertake the other duties. I can see no reason why he could not carry out the stamping of gas meters.

2096. (*Chairman.*) Has your attention been directed to the provisions for adding to the duties of inspectors of weights and measures, the inspection of petroleum and of the adulteration of food?—Yes, the magistrates had a meeting the other day to adopt this, but they found that there was a bill in the House of Commons to alter the previous Act. Therefore the subject was put off, and we have heard nothing of it since.

2097. Is it not the existing inspectors of weights and measures on whom those duties would fall, under the existing Act?—Yes, it was to authorize them to undertake this further duty that the magistrates met.

2098. (*The Warden of the Standards.*) In fact it was merely with a view to carrying out the provisions of the Act now in force?—Yes.

2099. (*Chairman.*) Do you think that the practice adopted in France of issuing general, specific, and detailed instructions from a government department to inspectors of weights and measures for the discharge of their duties, in order to ensure uniformity of action and due compliance with the requirements of law, would tend to the public advantage if authorized and adopted in this country?—Yes, the very thing we want is instructions from the Government, because there are scarcely two inspectors in the whole metropolitan district that work alike. Therefore if there were any particular instructions laid down, it would be to the public advantage.

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2100. At present it is left to their own discretion?—Yes, we each work the Act of Parliament in the best manner we can.

2101. (*The Warden of the Standards.*) And probably there is a still greater divergence of action throughout the country?—No doubt about it.

2102. (*Chairman.*) What is your opinion as to the expediency of appointing one or two Government officers in subordination to the Board of Trade, to supervise from time to time under established regulations the standards, apparatus, and operations of the local inspectors?—I really do not see the necessity for that, particularly in the metropolitan district, or in the counties, unless it is your intention to take the inspection of weights and measures entirely out of the hands of the police, then by all means for the sake of uniformity appoint Government officers.

2103. Do you not think that it would be easier to carry out those other objects which you think desirable if it was their duty to supervise the inspectors, and to see that the official instructions were properly carried out?—Probably the inspection might be carried out a little better, but if a book of instructions were issued and each inspector bound to carry out those instructions I think it would be quite sufficient.

2104. (*The Warden of the Standards.*) Are you aware that at the present time in a great many districts of inspection throughout the country the law is not complied with as to the due reverification of the standards, and that the standards are often in a very disgraceful condition?—I believe that such is the case.

2105. In all those cases do not you think that they require looking after?—Yes, they do in those cases certainly.

2106. Speaking generally as to the inspection of weights and measures throughout the whole country, do not you think that some such supervision as is now spoken of would be a good thing?—To a certain extent it would, but I think that if a fine were imposed under the Act for neglecting to send their weights and measures up at a proper time it would have a beneficial effect; that is to say, if anything could be introduced to impose a fine upon the authorities for not sending them.

2107. Who would be the actual authorities that you would fine?—In the county constabulary, I should consider that the chief constable would be responsible for his officers for the proper performance of their duties in sending their weights and measures to this office, and in all boroughs the mayor for the time being, and in the metropolitan district the clerk of the peace for the county in which he is appointed.

2108. Are you aware that there are several Acts of Parliament at the present time which impose fines on public and on local officers for not doing their duty properly, for instance, on inspectors of weights and measures, but that there has never been one single case of a fine having been imposed?—I believe that that is so.

2109. Then what would be the use of a regulation to impose fines on those officers for neglecting to do their duty?—You could ascertain when a set of standard weights and measures came to you at all times during the year by reference to your books, and I should say that if they had not been compared according to the Act of Parliament within specified times you should impose a penalty for neglect of duty.

2110. Then you would make me both informer and judge, and how could I enforce payment of the fine?—Not you personally; however that is only a suggestion.

2111. (*Chairman.*) Do you see any objection to a regulation being established by law under which the inspectors should be required to furnish periodically to the Board of Trade, such information connected with the discharge of their duties as should be required in a specified form, and of a similar character to that for the year 1866 called for by the Commission?—I think that would be a very good plan; I think that we ought to be more closely in communication with the Board of Trade than we now are. There are of course no officers in the country that could give the statistics better than the inspectors themselves. For one or two quarters I believe it had been neglected in our district, and the amount of penalties and convictions has not been recorded at all, but that would have been different if they had had direct communication with the Board of Trade. I have all the returns of my fines kept in a proper way.

2112. Have you any further information to give to the Commission upon the subjects to which your attention has been directed and which has not been brought out by the questions put?—No, I think not.

The witness withdrew.

Mr. R. Mellor.

Mr. Ralph Mellor examined.

2113. (*Chairman.*) You are the inspector of weights and measures for Manchester, are you not?—I am.

2114. When and by whom were you appointed?—I was appointed in the early part of 1844, by the magistrates of the borough.

2115. Had you any previous knowledge of the duties of the office?—None whatever. As a mechanical engineer I had a knowledge of scales and balances and things of that sort, but it was a general knowledge only, not a particular knowledge.

2116. Do you act under any and what instructions from the local authorities?—I act under instructions from the magistrates, but I am sorry to say that I have not got those instructions with me.

2117. But had you special instructions from the magistrates in addition to the Act of Parliament?—Yes, on my appointment I had.

2118. Are you aware that in many cases the inspectors have no special instructions?—Yes, that is so, I believe, but my case was exceptional as far as that goes.

2119. What Act of Parliament do you act under?—Under all the Acts since the 5th of George the Fourth, chapter 74.

2120. Are you provided by the authorities with copies of the Acts of Parliament which relate to your duty, and has your attention been drawn to their provisions?—Yes, it has, and I am provided with those Acts by the authorities.

2121. Do you execute all the duties yourself, or have you any and what assistance?—I have two outdoor inspectors; I am considered the chief inspector, and they act under my instructions and directions.

2122. Are they appointed and paid by you?—No, by the magistrates.

2123. Are you paid by salary, or have you any other emoluments?—No emoluments whatever; we are all paid by salary.

2124. What is the annual amount of your salary?—Mine is 220*l.*

2125. What disbursements have you to discharge?—Nothing out of that; the corporation find me an office.

2126. Your district is entirely in the city?—Yes.

2127. And they provide you with all that you require?—Yes; with everything that I require.

2128. Then you inspect on foot, I suppose?—Yes.

2129. As to false and defective weights and measures or balances seized and condemned, what becomes of the proceeds?—They are sold as old metal, and the proceeds handed over to the treasurer of the city.

2130. You do not profit by them in any way?—Not in the slightest degree.

2131. With respect to your local standards, how many have you in your custody?—I have three full sets of standard avoirdupois weights, one short set of 7 lbs. down, and two full sets of standard measures, and one from a quart down.

2132. Have you any decimal bullion weights?—I have two sets of decimal bullion weights, and I have one old troy set from a pound down to a grain.

2133. Those form the usual set of standard troy weights?—Yes.

2134. What precautions are taken for their security and preservation?—I have boxes and presses made to put them in.

2135. What class of boxes?—We have wooden boxes lined with green baize and covered.

2136. How often are your standards used?—Every day; those that are in use are used in my office.

2137. How often are they reverified?—As often as they require it.

2138.—How often is that?—Not less than once in five years for weights according to the Act of Parliament, and 10 years for measures, but I send them whenever they require it.

2139. Who gives directions for their readjustment and reverification?—Myself.

2140. Who is responsible for their being duly reverified?—Myself.

2141. By whom are the standards adjusted?—Messrs. De Grave, Short, and Fanner.

2142. How long does it take for the adjustment and reverification of local standards?—Generally speaking, about a month.

2143. Are you deprived of their use during that time?—No, I have got so many sets that I have relays.

2144. Then no public inconvenience has ever arisen from your having been deprived of their use, and there has been no cessation of inspection?—None.

2145. What balances do you use?—I have five pairs of scales for the in-door department; there is a relay of five, so that as soon as any one balance is wrong I send it to Messrs. De Grave for readjustment, and put in its place one of the other scales.

2146. How often are they adjusted?—As often as ever they require it. I have half a dozen pairs of scales in my private office for the purpose of testing the standards to know when they get out of order, by which means I am enabled to send them up here to be adjusted and reverified.

2147. What other apparatus have you for the discharge of your duty?—I have nothing but the standard weights and measures, and stamps.

2148. What stamps do you use?—I use the city of Manchester stamp and a letter and number. For instance, the word "City of Manchester" is in a circle, and "A. 69," would mean the first six months of this year, and "B. 69," would mean from the 30th of June to the end of December, thus changing the letter twice a year.

2149. What books do you keep?—I have a large number of books, subsidiary and others. This is what I call the in-door journal (*producing a book*). It contains the proceedings of last year and up to the 30th of June this year. There are daily entries in it, and the amount of money received is added up weekly, and that amount I pay to the treasurer and take his receipt. The heading of each page of this book is as follows:—

SPECIMEN OF "IN-DOOR JOURNAL," MANCHESTER.

(*On the left-hand page.*)

Date when Weights and Measures were brought to be Stamped.	Date when returned.	Name.	Trade.	Residence.	Remarks.

(*On the right-hand page.*)

No. of Ticket.	Weights and Measures Stamped.	Weights and Measures Adjusted.	Amount received for Stamping.	Amount received for Adjusting.	Total.

2150. Is all the money paid into the city fund?—It is. I have here, for instance, a receipt which corresponds with the amount for the week up to the 26th of June (*producing the same*).

2151. (*The Warden of the Standards.*) This is your book for in-door stamping and adjusting?—Yes, and this is the index to it (*producing another book*).

2152. (*Chairman.*) The names in that book are those of the persons for whom you adjust and stamp?—Yes, during the last 12 months.

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2153. This has nothing to do with the persons who are summoned?—No, this book is for the out-door inspection (*producing another book*). The names of those persons who are convicted are put into an index similar to the other, so that we can refer to them a any time. Here is a copy of the heading of each page of this book.

SPECIMEN OF "OUT-DOOR JOURNAL," MANCHESTER.

(*On the left-hand page.*)

Date of Visit.	Name.	Residence.	Trade.	Scales.	Number and Description of Weights and Measures examined and found correct.

(*On the right-hand page.*)

Number and Description of Scales, Weights, and Measures found defective and reported.	Date of Conviction.	Convicting Justices.	Amount of Fine.	Costs.	Previous Convictions.	Observations.

2154. This is the general book in which everything relating to the inspection is entered?—Yes, for the No. 1 inspector, and No. 2 inspector has a similar book, and it is kept in a precisely similar way.

2155. Those are the inspectors under you?—Yes.

2156. Do they keep those books?—Yes, and I look over them, and the cash additions are all in my handwriting.

2157. Have you any special book of your own, of the work that you perform yourself, as distinct from what they do?—None.

2158. Do you ever inspect alone without one or other of the assistants?—Very rarely. This book (*producing a small book*) is what No. 1 inspector carries in his pocket, and all the particulars are transferred into the large one; it contains the number of weights that are incorrect, of those that are correct, and those that require adjusting.

2159. What accounts do you render?—I make a report, of which this is a leaf (*producing the same*), showing every day's duty by each out-door inspector, and every day's duty of the in-door department, showing also the amount of money received and all the rest of the particulars. This report goes before the Watch Committee of the Town Council. When the weekly convictions have taken place, which I take up about every month or two, I report to them in another form, and it is certified by the Chairman of the Committee.

2160. How often is that given in?—Every time I go before the magistrates, about every six weeks or two months.

2161. What regulations are established for the testing and stamping of new commercial weights and measures?—I test all weights belonging to the public or to dealers in weights, after the same method as that which is adopted here at the Board of Trade, by counterpoise.

2162. (*The Warden of the Standards.*) Do you think it would be a good regulation to make, that the method of counterpoising should be always adopted?—I think it is very desirable indeed, because it frequently happens that a beam may get wrong from a variety of causes, even in my office, with the great care that is taken of them there.

2163. Do you know whether that method is often used by other inspectors?—It is in Liverpool, I believe, but I am not aware of anywhere else. I could point out one instance where I myself was very greatly deceived. The sun was shining through a glass window upon one of the arms of the beam when I was testing a weight and slightly warmed it, and consequently elongated it, and I could not get a counterpoise, till eventually I discovered how the discrepancy arose, and of course then I had to remove the scale and get another.

2164. (*Chairman.*) Where is your office situated, and what arrangements do you make for attending there?—It is situated in Lower King Street, in Manchester, some 100 yards from the town hall; it used to be at the town hall, and provision is being made in the new town hall for me.

2165. What arrangements do you make for attending there?—I attend there every day.

2166. What business do you discharge in the office itself?—Overlooking all the work of the out-door inspectors, in-door workmen, and clerk employed.

2167. The clerk's occupation is to prepare the books, is it not?—Yes, to make entries in the books which I have shown you.

2168. Are those entries made from the statements you have shown to the Commission?—Yes.

2169. What are the regulations for comparison after readjustment; is that done by the method of counterpoise?—Yes, it is.

2170. And that is done at the office?—Yes, when the weights are adjusted.

2171. How long are weights and measures kept at your office before being returned to their owners?—Perhaps 24 hours as a rule, but there are hundreds that are never sent for at all. People may remove and go to Liverpool or Birmingham, or go anywhere, or give up business, and then a notice is posted in the office that all weights and measures brought there for adjustment, if left beyond three calendar months, the fees not having been paid, are forfeited,

and will be destroyed; that is done four times a year. When I say destroyed, I mean that they are put with the rest of the old metal and sold.

2172. Have you ever been called upon to compare a weight or measure in which minute accuracy has been required?—I have not.

2173. What is your practice as to restamping and charging a fee in the case of stamped weights and measures from time to time brought to you for comparison, and found by you to be correct?—If they are found to be correct, and they have been properly stamped before, I make no charge, but return them to the parties bringing them.

2174. Do you adjust a large number of those commercial weights and balances, besides comparing and stamping them?—Yes, the weights are all stamped after they are compared, but the balances are not stamped at all, only weights and measures.

2175. Do you consider it a good thing that balances should not be stamped?—I think that it is very desirable that they should undergo inspection before being sold by the vendor.

2176. The objection to their being stamped is that they might get out of order afterwards?—That is so.

2177. But it would be a guarantee that they had been correct at one time?—Yes, at one time.

2178. And it might be a protection to tradesmen in buying a balance?—Yes; an honest tradesman is very anxious upon that point.

2179. When did you first begin the practice of adjusting?—When I was first appointed.

2180. Have any objections been raised in your district of inspection against this practice of your adjusting weights and measures, especially by tradesmen who adjust, and who think their interest prejudiced by it?—None whatever; the public of Manchester think it a very great advantage that they can have all their weights and measures adjusted at the same place where they have to take them to be stamped.

2181. Then you have never had any representations made to the authorities against it?—None.

2182. Are you aware that in Liverpool, where the inspector also adjusts, a memorial complaining of the practice has been presented to the magistrates?—Yes, the Warden of the Standards has drawn my attention to a memorial which I saw printed amongst the papers of the Commission, but in no other way.

2183. Do you consider the practice to be perfectly legal?—Yes, I think so; I think it is as legal for the corporation to adjust weights and measures as for any individual, and there is a very much stronger guarantee for their accuracy, when it is done by somebody who is known, and who can be complained against to the local authorities.

2184. It was about 18 years since this memorial was sent in, and another appears to have been sent in this year from Liverpool, signed by Mr. Thomas Chesshire and 20 other makers and sellers of weights who object to the corporation having the business of adjusting weights and measures. They mention one thing, which no doubt you are aware of. In Liverpool, they maintain that the public convenience does not require this practice, but in Manchester, where the corporation have done it, it is admitted that it has been an advantage to the public?—I think that is shown by the absence of complaint.

2185. Is it not the case that in the Act of the 5th and 6th of William the Fourth the inspectors are described as inspectors or examiners of weights and measures only, and that in the description of the instruments to be used, none for adjusting are mentioned, and no fees are specified as authorized to be taken for adjusting; and although the former Act did not prohibit manufacturers to act as inspectors or adjustors, it is now provided "That no maker or seller of weights or "measures, or person employed in the making or "selling thereof, shall be appointed an inspector"?—I am aware that the Act of Parliament is so, but its construction is open to very great question. I contend that as there is nothing absolutely said in the Act to prevent an inspector adjusting weights, he is quite as much justified in doing so as anyone else.

2186. You consider that the adjustor of a weight, whatever he may do in the process of adjustment, cannot be considered either as a maker or a seller?—Certainly not.

2187. Even if the weight is very much out of order and he has to adjust it to such an extent as almost to renew it, and then charges a fee, you do not consider that he can justly be called either a maker or a seller?—Not at all; the weight is made to his hand and he simply adjusts it; he compares it and makes it correct with the copy of the standard. This is my scale of fees for stamping and adjusting and for marking the contents on weights and measures (*producing the same; the scale of charges is the same as stated in Q.* 810). The first column is settled by Act of Parliament, and the other for adjusting, &c., by the magistrates.

2188. Do you find that the trade of scale makers suffers much from the competition of the inspectors as adjustors?—I never have heard a complaint from any of them in Manchester.

2189. Is the scale maker's trade a flourishing one in Manchester?—There is not so much done in Manchester as in Birmingham or in London; but they do a great deal of business.

2190. Are you aware that representations have been made to the Board of Trade of the difficulty of getting weights and measures adjusted from time to time in country places where the inspection is performed by the police, who do not adjust?—I can easily understand that, because they only go to certain places occasionally; but that could not refer to my office, because we are open every day from morning till night, except on Saturday, when we have a general half-holiday. I have not heard any complaints myself. I have had complaints, and here is a sample of them, of the improper adjustment of weights by the police (*producing some roughly adjusted weights*).

2191. The police are not in the habit of adjusting them, are they?—It was so in this case, which occurred in a neighbouring county. The Deputy Chairman of Quarter Sessions called upon me and investigated this matter, and I have brought here the weights that the owner brought to me.

2192. From your experience upon this subject do you think it would be an expedient provision of the law if the local authorities or the Board of Trade were empowered to authorize the inspector, or a mechanical assistant, to adjust in such cases as they may think expedient?—Yes, I think it is desirable that they should.

2193. Do you think that the local authorities or the Board of Trade should authorize the inspector to adjust?—I think that as a doubt exists as to the construction of the law, it is desirable that the doubt should be set at rest.

2194. Do you think that the authorities should decide whether the inspectors of a district should or should not adjust?—I think it is most desirable that they should adjust, for the reason which I have already named, the convenience which the public derive from it.

2195. Do you generally find the new weights accurate when sent to you for comparison?—Very rarely.

2196. Do you reject many weights and measures that are so sent to you?—Not a great many.

2197. What is your practice as to the allowance of error or draught on such weights and measures?—We just allow the scale to turn in the slightest degree, but before testing a weight, and before it is adjusted, we clean and scrape and make it as clean as possible, so that in point of fact when the weight gets into use it would get rather heavier for the first week or two from the dirt that unavoidably accumulates upon it.

2198. Do you compare earthenware or glass weights, and do you ever stamp any of such weights?—I never stamp any earthenware weights, nor allow them to be used; nothing but iron, brass, or gun metal.

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2199. Do you ever compare and stamp any weights or measures of other denominations than the official standards?—None. I used to do so when I first commenced, by direction of the magistrates, who referred me to the previous inspector in Salford; but I very soon found out its illegality, and we had a friendly case tried, which perhaps has come under your notice. The case was tried in Manchester, and argued by our town clerk on my behalf and by a lawyer on behalf of a shopkeeper, and it was found that I was right, and I issued notices accordingly.

2200. (*The Warden of the Standards.*) Was that case published?—Yes, it was.

2201. (*Chairman.*) Do you compare and stamp troy weights?—I do.

2202. Have you considered the provisions of the law, whether they do not require troy weights to be stamped and inspected as much as avoirdupois weights?—I have, and I issued a notice, when I got the standard troy weights, to all silversmiths and others who use such weights; that was in June 1851, I think; and the notice was as follows:—

"Office of Weights and Measures,
"Lower King Street, Manchester.

"It being my duty, as inspector of weights and measures in this borough, to examine the troy weights used therein as well as other weights, I beg to inform you that it is my intention to commence such examination, and to continue the same from time to time, and that I am now prepared to adjust the weights in your possession, and to stamp all such as correspond with the copies of the imperial standard, previous to commencing a course of examination.

"I am, yours very respectfully,
"R. Mellor,
"Chief Inspector of Weights and Measures."

2203. And you found no objection made to your inspecting them?—None.

2204. Do you see any reason whatever why troy weights should not always be stamped and inspected?—Certainly not. Why should silversmiths and goldsmiths sell their goods without having their weights verified and stamped the same as other people?

2205. Have you ever been asked to compare or stamp metric weights, or has any application been made to you upon the subject?—No application whatever.

2206. Are you aware that the Commission have recommended that metric weights and measures should be allowed to be used in this country, metric standards being provided, and copies to be provided to inspectors when required?—I am aware that that has been done.

2207. In the event of this recommendation being carried out by law, do you not think that confusion and public inconvenience might be caused by having three different concurrent systems of weights and corresponding standards?—I do think so. I think when the Bullion Act was passed, it was a great misfortune that the Legislature did not prohibit the use of the old troy weights, because there is a confusion in allowing two different sets of troy weights, and it is shown in this way. I went down to Liverpool one day when the Act had been in force some six or nine months, and I there found that the inspector of weights and measures had taken it for granted that the Act relating to the troy pound, ozs., dwts., and grains was repealed, and that he had refused to stamp a great number.

2208. Do you mean that he refused to stamp any troy weights?—Yes; all of the old description, except the decimal series of ounces.

2209. (*The Warden of the Standards.*) He was not aware, I suppose, that decimal bullion weights were directed to be established as supplemental to the troy weights?—No; he thought that the others were done away with, and that he must never stamp them any more. He was amazed beyond measure when I told him that he had been acting illegally, and the sooner he remedied the mistake the better, or he would get into trouble.

2210. Are decimal bullion weights used in Manchester much?—They are used by some large silversmiths, but the pawnbrokers as a rule do not use them. They prefer the old sort.

2211. Considering the limited extent to which troy weights are now used, do you think that it would be expedient to take the opportunity of abolishing troy weight and substituting either avoirdupois or metric weight?—I think I would keep the metric weights on the decimal system, and abolish the others.

2212. But you know that the Commission only propose to establish metric weights permissively; do you think that it would be no hardship to silversmiths and others who use troy weight, that they alone should be obliged to adopt metric weight, while other persons are allowed the option of adopting it?—But my answer referred only to troy weight.

2213. Do you think it would be no hardship to those who at present use troy weight that they should be compelled to abandon it, while those who are using avoirdupois have the choice of going on with avoirdupois if they think fit?—I think they ought to be compelled to use the metric system as far as regards bullion and silver.

2214. You would make that difference between them and others. I mean you would allow the avoirdupois weight?—Yes, as it is now.

2215. But are there any shops in which troy and avoirdupois weights are both used?—I do not know of any.

2216. Although you would have in one sense three concurrent systems, you would not have three concurrent systems for the same description of goods?—Certainly not.

2217. (*The Warden of the Standards.*) Do you think that there is much feeling in favour of the metric system in Manchester?—No; I think that the feeling is against it certainly. I am in favour myself, with regard to bullion, of repealing the Act of Parliament so far as relates to the old troy weight.

2218. Do you think if the Legislature permitted metric weights and measures to be used, leaving avoirdupois weights and troy weights as they now are, that metric weights would be adopted?—Not in Manchester, according to my belief and experience.

2219. Do you think it would be advisable that the Legislature should enact that at some specified number of years hence, the use of metric weights and measures should be made compulsory?—If ever that was done, it would be desirable to give a considerable length of time before the compulsory provision was brought into operation.

2220. But you are in favour of its being made compulsory?—Yes, and I always have been, if it could be done. And I may point to one thing as to the mode in which the public generally would be disposed to act up to it, and it is this: A great number of intermediate weights were in use in Manchester, and I myself, as I have said, stamped them in accordance with the instructions of the magistrates, whose opinion I took upon it, as they had been done before. But when we had this case tried in court and it was decided in my favour that intermediate weights to the standard were not legal, I issued my notice against them, and the public generally adopted my views and put these weights out of use, and got others in their place. A great deal of fraud was committed by the use of those intermediate weights; the 3 lbs. weight was to my knowledge repeatedly used in markets for the 4 lbs., and as it was turned the lower side up, it was difficult to tell from its size whether it was a 3 lbs. or a 4 lbs., and so the public were cheated.

2221. (*Chairman.*) Have you ever considered whether it would be expedient to require by law that all balances used for buying and selling should be tested and stamped before use?—I have considered it, and I think it would be a very desirable thing indeed. There are a very great number of beams and scales made so exceedingly cheap that I would not pick them up to carry them home. The owners get into trouble, and they get summoned and fined for

using those things that are made as cheap as possible for sale and not for use. They are wrong to begin with, and some of them very materially so.

2222. (*The Warden of the Standards.*) Is that often the case also with balances with porcelain pans and other similar platform pans?—Those are the worst that I find. By a little mechanical arrangement of the levers underneath, by shifting the weights on the plate, they can be made to weigh for the purchaser or against him. This either elongates or shortens the lever, according to the position in which the weight is placed.

2223. Is it not more particularly with respect to such balances as those, that a regulation to compel all balances to be stamped before being used would be very advantageous to the public?—It would be advantageous to the public, because it would prevent such from being used at all. The inspector, as a matter of course, would not tolerate them; he would not stamp them, and consequently they would not get into use, because if they were found in use without the inspector's stamp, as a matter of course, if the law was altered to that effect, the man would become liable to a penalty, and therefore the use of them would be discontinued.

2224. Do you frequently meet with balances of that kind during your inspection?—Frequently.

2225. What do you do with them?—I am not able to seize them, unfortunately, except in the market. We have a local Act, the Markets Act, 9th and 10th of Victoria, chapter 219, an Act for providing market places and for regulating the markets and fairs in the Borough of Manchester, in the County Palatine of Lancaster, passed on the 16th of July 1846. By that Act I am empowered to seize scales and balances of any description in the markets, or anywhere in the streets where costermongers are selling; and of course I find that those sort of people, as a rule, cheat most dreadfully.

2226. Are you not also empowered to seize defective balances in open places by the general Act?—Yes, in open places, in the streets.

2227. (*Chairman.*) If such a regulation were established as you mentioned, that balances should be tested and stamped, should you see any difficulty in carrying it out in practice?—The difficulty would be in stamping them in such a manner, or having them engraved, so as to prevent the beam itself being injured.

2228. Would not it be necessary to stamp both pans?—It would not be the pans that should be stamped, it would be the beam itself. It is that which is inaccurate, not the pans.

2229. (*The Warden of the Standards.*) Might not a small copper or brass pin be inserted in the beam to receive the stamp?—If that was so it would weaken the beam, because if it bored any distance into the middle of the beam it would weaken it to that extent, and therefore would be objectionable. I fancy that there might be something done in the shape of engraving at a cheap rate.

2230. Might not a bit of solder be fixed on the middle of the beam to receive the stamp?—If it was soldered on to the beam without being let in it might do, not taking any portion of the metal out of the beam, because then you weaken and injure the beam.

2231. Do you know whether that is the mode adopted in France?—I do not know anything about what the French system is.

2232. (*Chairman.*) What regulations have you for examining and stamping measures of capacity?—I have copies of the standard measures, as I have already told you, and I have also duplicate measures of a conical shape made of brass, very strong and tinned inside and with a lip. Those are carefully tested by myself under my own inspection, and after the same method that you test measures here, with the syphon and other apparatus; that is done periodically, so that I get them very accurate, within a few drops perhaps in four gallons. Those are what I use for testing the publicans' and milk measures, and other measures that may be brought to me, for the purpose of stamping and adjusting.

2233. Do you measure with those conical measures up to the top of the cone or up to the spout?—Only up to the neck, to the top of the cone; the lip is put on simply for the convenience of pouring out. I test wooden measures by rape seed, and I have found in practice (I was some time in making that discovery, but the same universal law attends that as other things) that friction creates heat and distension. For instance, if we take a bushel measure and run the seed the first time from a hopper into the bushel measure, and strike it carefully, and take and sweep all the rest of the seed away as it runs over, and then put the seed back into the hopper and let it run again, we find on striking it again that there is an overplus; and the same the second time, or the third, but to a less extent. About the third or fourth time of running it through, it attains the maximum heat and bulk, and then we commence to test the measure with it; but we run it through about four times before we test the public measures, and the same with half bushels and pecks and half pecks, and so on.

2234. By running it through four times it becomes accurate?—It becomes as nearly accurate as possible.

2235. What would the effect be if it was not run through so often?—I should be stamping measures which were too large, and that would be an injustice to those who bring them to me; they would say that I was misleading them.

2236. How is the heat produced?—It is the friction which causes a little heat, and therefore causes expansion in the seed.

2237. Do you mean that the friction of the seed against the sides of the hopper and against the other portions of the seed produces that expansion?—Yes.

2238. Do you test and stamp casks purporting to contain a certain measure, such as nine gallon casks for beer?—I never did, and I never have been asked.

2239. Do you think it desirable that vessels and measures should be of the same shape, and that it should be allowed to use ordinary drinking vessels, which are not measures, when they are shaped like a measure?—All new measures I think ought to be of one shape, and in order to induce the tin-plate workers of Manchester to make them as nearly all one shape as possible, I have had patterns made by the foreman at my workshop, who is a tin-plate worker. I lend these patterns out to them, and they make all their measures cylindrical. I believe that if the Act of Parliament was very strictly indeed carried out, every measure that is stamped ought to be exactly the shape of the standard measures which I am furnished with verified at the Board of Trade; that is my impression.

2240. Do you find that vessels for drinking out of, or other similar use, are often of the same shape as measures, but not the exact measure, and that people are deceived by them when they have them filled with beer or whatever it may be, and that the shopkeeper when called upon would say, "This is not a measure, it is "only an ordinary pot for beer," or "I did not pre- "tend that it was any particular measure"?—In all cases where I find even metal measures that have their contents marked upon them, say an imperial pint, or a quart, or half a pint, or the word imperial, if that is on a pot of any kind or designation, I hold that it is to be taken as a measure, and I treat it accordingly; and if it is found wrong, I seize it.

2241. And if it has not anything upon it?—If it has nothing upon it, then I treat it as a drinking cup, which according to s. 21 of the Act 5th and 6th of William the Fourth, as I read it, of course subject to correction, is entirely allowed under the term "drinking cup," if not represented as containing the amount of any imperial measure.

2242. Do you test and stamp measures for milk and cream?—Yes, I stamp all measures; I am furnished with a standard down as low as half a gill, and they are used for milk, and I suppose for cream also.

2243. (*The Warden of the Standards.*) Do you not

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find a greater similarity between measures used by milk sellers, and the milk cans that are not measures, than perhaps in any other trade?—I have never noticed that. The measures that they use are such as I have furnished them the patterns of, to be made of tin by tin-plate workers. And I may as well add here, that in order to encourage the dealers in measures and weights to sell them ready stamped, (and the Act of Parliament prior to the 5th and 6th of William the Fourth required them to be sold stamped, and it ought to be so again I think,) I charge only half the adjustment price to dealers. But, in point of fact, I do not charge them even one-tenth of the cost price, and I do that purposely to encourage them to sell nothing but stamped weights and measures, which, of course, is very beneficial to the public generally, and the dealers have the advantage of my liberality in not charging them the full amount.

2244. (*Chairman.*) By whose authority is that done?—By myself.

2245. Who is the loser by that?—The public would be the losers if they bought unstamped weights.

2246. But who is the loser by their paying you rather less?—The corporation of Manchester; they submit to what I tell them in this matter; they know that I do what I consider right, and beneficial to the public.

2247. Is there a fee taken by law?—No, it is not a fee required to be taken by law, it is only by the regulation of the justices, and not by Act of Parliament.

2248. What is your method of stamping measures for liquids?—I stamp upon the solder that is placed outside on the tin measures, and on the metal itself if they are made of pewter.

2249. As to measures of capacity for dry goods which you test and stamp, are they always made of wood?—Yes.

2250. What are the ordinary denominations which are tested by you, and for what purposes are they intended?—From a bushel down to a quart in wooden measures, and they are chiefly used by fruiterers and corn merchants, and the larger measures by railway and canal companies and carriers, for measuring grain to the parties for whom they carry goods, and I test them by rape seed.

2251. (*The Warden of the Standards.*) Are you ever asked to compare and stamp iron measures for grain?—Yes, that is to say, partly of iron; I have been asked to stamp them and have stamped them, or rather marked them, for it is a brand mark upon wooden measures that I use, and not a stamp; strictly speaking you cannot call it a stamp, though it is used as such. I stamp the inside and the bottom, because I have seen after they have brought measures to me to stamp on the top side, that they have taken the bottom out and cut an inch or so off and put it in again, and so I have been assisting to cheat. Therefore I stamp them on the two sides at the bottom inside, so that I can see if the bottom has been moved at all. They are made with iron rims and sheet iron clothed, but that is to strengthen them, they are not made wholly of iron. I think I have never had one wholly of iron.

2252. Are they always cylindrical?—Yes.

2253. Have you never been asked to stamp and compare any that are square?—None; I never saw one that was square. I was just thinking whether I did not once have an iron measure sent in by the corporation. Occasionally in the winter time the mayor gives coke to the poor at a very low price, and for convenience instead of weighing it, it is measured out to them in a bushel; I consider that the coke is given away in all those cases, and therefore I can take no cognizance of the measure, only I have adjusted it. The coke is a private gift of the mayor to the poor of the city in the winter season.

2254. Other representations have been made to us that in some parts of Yorkshire they use square measures of capacity; have you ever met with them?—I never saw one.

2255. Do not the public lose a great deal from the corners, if square measures are used for measuring potatoes and things of that kind?—I have never even heard of one until this moment. If I might go into that subject at all, I should say that in my annual report I have recommended that all goods should be sold by weight and not by measure; fruit, grain, and everything of the kind.

2256. (*Chairman.*) Do you think that would prevent fraud?—I think it would go a great way to prevent fraud, and be far better for the public generally, and for the seller also.

2257. Do you apply that to liquors also?—No; but that is very commonly done, I may say, in Manchester, and with very great advantage to the parties doing so; I have known stout and bitter beer come from London and Burton-on-Trent that has been very materially short of measure; we have in Manchester a person who came from London and set up business as a restaurateur, and he got a weighing machine purposely to weigh the beer. He said, he used to bore into the barrel when stillaged, about a third of the way down, and nothing came out. He was cheated in that way to such an extent that he bought a weighing machine and weighed every barrel, butt, and hogshead of stout or bitter beer that came into his place, and he numbered the casks and tared them back again, thereby saving an immense amount every year.

2258. Why do you think that fraud would be more difficult if everything were sold by weight, seeing how common fraud is with weights?—I am speakng of it not so much upon the subject of fraud, as its being a benefit both to the buyer and the seller, and a fairer way of dealing.

2259. Do you think it would be more difficult for a person to be cheated by weight than by measure?—That is so, yet I believe there is more cheating done by weight than there is by measure.

2260. Still you recommend the adoption of weights instead of measures?—It is not in cases such as I have been alluding to that the mischief is done. It is not in the larger transactions, such as those of corn dealers and others, to whom I would make this apply, it is with costermongers and such persons.

2261. Would you make a man who sells currants in the street sell them by weight?—I would; it is so in Manchester.

2262. Do you think that there is less cheating among them in Manchester, than there is among the people in London who sell currants and strawberries by measure?—When they sell fruit in Covent Garden, I believe they sell it by the pottle, which is no measure at all.

2263. You know there is a great deal of fraud in the streets of London in the sale of fruit, do you think that would be remedied by compelling them to sell by the pound?—If the customer would take care what he is buying, he would not be cheated, but they cheat him by throwing one end of the chain over the arm of the beam and shortening it. I could show you a measure with not only a false bottom, but with false sides also.

2264. Do you think that fraud of that kind is easier than fraud with weights?—It is sooner done. I have heard of another case where a man was very clever in Manchester. He sold a peck of sand to a servant girl, and instead of putting the sand into the measure he turned the measure round, bottom side uppermost, and heaped the sand on the bottom, and then poured it off as a peck of sand.

2265. (*The Warden of the Standards.*) Have you ever considered whether it would be advisable to compel the stamping of casks for beer; 9 gallon and 18 gallon casks, and so on?—If that was done, they must still be subject to alteration, as the weather changes. Suppose they were to lie out a good while without having any liquid in them, the hoops would become loose, and they must then be tightened up, and as a matter of course that would alter the capacity.

2266. Have you heard that in framing the new regulation for weights and measures in Germany, it became

a question whether casks used for wine should be stamped or not, and that there was a general expression of opinion from the sellers of wine that it would be advantageous to the public that they should be stamped, and regulations accordingly were made?—I had not heard of that before; I have frequently heard people say that it would be desirable not only to have the casks stamped, but that there should be an inspection of wine bottles, and porter and bitter beer bottles, but that would be a great alteration of the existing system. This book which I have with me is almost full of complaints which have been entered by my inspectors of different shopkeepers cheating legitimately, if I may so call it; that is to say, where the inspector has no power or control whatever over them. For instance, they may be weighing a quarter of a pound of sugar with three and a half ounces in the scale, and if the weights are properly stamped, and the scale correct, we have no power to interfere; and yet we know that this fraud is committed upon the poor people, and the poorer they are, and the smaller the quantities, the larger the fraud and the greater the per-centage of loss to them.

2267. (*Chairman.*) As to measures of length, do you test and stamp many such?—Yard measures only.

2268. Of what description of material are they?—Generally of wood, lance wood; some are made of brass, and let into the counter for drapers.

2269. Do you know any reason why measures of length other than the yard, used for trade purposes of buying and selling, should not be tested and stamped; for instance, the subdivisions of the yard used in the sale of silk, woollen, cotton goods, &c., and the foot, and its multiples, and subdivisions, used in the sale of various articles, such as timber, sheet glass, gutta percha, and india-rubber, &c.?—There is no reason whatever; on the contrary, I think it is very reasonable indeed to ask the Legislature to give power to an inspector to stamp those things; they are in constant and daily use, and are measures of very great importance and ought to be stamped.

2270. Have you considered the expediency of requiring by law that all weights and measures, when sold as such, for instance, two and three foot rules divided into inches, should be previously compared and stamped by the inspector as a certificate of their accuracy and proper construction?—That would be very desirable to be done, on the same principle that a scale maker or weight seller, or measure seller should be compelled to have his things stamped.

2271. At present you stamp nothing but yards?—No, I have no means of doing more.

2272. Do you know any reason why the yard should have this privilege?—No, there is no reason why the yard measure should have a privilege over other measures at all.

2273. (*The Warden of the Standards.*) Are you aware that we are verifying now a yard subdivided into feet and inches?—I have heard so, but I have not been officially informed, nor have I been provided with any means of testing such subdivisions in Manchester. I am frequently asked whether I have every means and appliance that anybody else has for the purpose of doing justice to the public. I wanted to have troy weights in the first instance, and our town clerk at once said that I ought to be furnished with every requisite means, so that the public might come to me and have their weights and measures verified, whether troy weights or any other. And that has been acted upon.

2274. (*Chairman.*) As to the inspection of weights and measures, have you any general or particular instructions for the discharge of that duty?—I had instructions from the magistrates upon my appointment, but as I have explained to the Warden of the Standards, I have been so frequently appealed to by other inspectors of corporate bodies throughout the kingdom to furnish them with the modes of adjusting and testing which I adopted, and I have lent these instructions so often, that I cannot now find them, although I looked for them before coming here. My instructions combine both adjusting and stamping, and also inspection.

2275. Have you any regular system laid down for the districts that you visit; that is to say, how often do you go to certain shops, and so on?—No; if there is any complaint, or if we see anything which induces reason to believe that there is something wrong going on, which any inspector as well as myself can easily discern, for instance, if we see a shopkeeper make hastily towards a scale and put his hand about it, we know very well that would not be done unless there was a cause for it.

2276. Do you go about to the districts and visit them personally?—No, I do not; I have a general supervision over both the in-door and the out-door departments.

2277. You only supervise the inspectors?—Both the inspectors and the workmen in the workshops. I also look after the adjustment and stamping of weights and measures, and when a case is reported to me by the inspector, I frequently go myself and examine into it.

2278. Do you require to inspect a certain class of shops much more frequently than others?—Yes; provision dealers, for instance, and grocers, and those who deal in the necessaries of life.

2279. What is the extent of your district of inspection?—It comprises the whole city of Manchester.

2280. Can you inform us what is the total population, and the number of shops and other places subject to inspection?—I think that there are something like 10,000 shops, and the population would probably now be about 350,000.

2281. Do you inspect many weights and measures and balances in open places or places other than shops?—Yes, whenever we find them.

2282. Have you met with any metric weights and measures during your inspection?—None. I may state that by the Markets Act, the local Act that I was alluding to a little while ago, all the hawkers of coal are compelled to carry a machine and weights of a pattern similar to what is deposited with me, which are to be marked or stamped, and if the weighing machines or the weights connected with them are found inaccurate, they are seized.

2283. Do you inspect them in the streets?—Yes.

2284. (*The Warden of the Standards.*) Do your inspectors stop any coal carts to examine their weights and measures?—We ask them to stop, and we have the power to examine by the local Act all weighing machines and weights, and if they are found not to be in accordance with the standard, they are subject to a penalty.

2285. Do you consider that you have the power under the general Act to inspect all weights and measures in coal carts?—I think that would be very desirable, and if it is desirable for Manchester, it is equally desirable in my opinion for every other place.

2286. Do you think that power exists under the general Act?—No, I do not. Referring to this inspection in open places and streets, I should think that would cover it of itself, both as regards coal and other things, costermongers' carts, and so forth; but we have a special local Act, and we take our proceedings under that special local Act for coal carts.

2287. One of the Metropolitan inspectors has given evidence before us that he can only inspect the weights and weighing machines of coal carts if he finds them actually in use when the men are delivering coals, but he cannot inspect them if they are not actually using them. You go further than that, do you not, in Manchester?—Yes, I go further than that. I would stop a cart and insist upon examining the machine and the weights at once, and if the man refused to submit to it I would summon him for obstructing and hindering the inspector of weights and measures in the performance of his duties.

2288. You think that similar power ought to be

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given generally to the inspectors?—I think so, decidedly.

2289. (*Chairman.*) Have you met with any weights and measures other than those denominations for which there are official standards, or any so-called local or customary weights and measures?—I met with a great many in the former part of the time that I am alluding to, when I was first appointed, but they are all done away with now.

2290. Do you experience much difficulty or annoyance in the exercise of your duties of inspection?—No.

2291. I suppose your sub-inspectors would be likely to meet with it?—Yes, they would be likely to meet with it, but they would report it to me if it were so. The fact is, the respectable shopkeepers, all of them, are very desirous that this inspection should be carried out as freely as possible; they consider, and our town clerk has repeatedly made the remark, that he believes, that the Act of Parliament relating to weights and measures is quite as much for the benefit of honest shopkeepers as it is for the benefit of the public.

2292. Because it prevents unintentional short weight and measure?—Yes; it also prevents a man being cheated by his next door neighbour underselling him and taking advantage of false weights and measures; I call that cheating.

2293. (*The Warden of the Standards.*) You mean to show that a vigilant inspection is to the advantage of the fair trader?—Yes.

2294. (*Chairman.*) What is your practice with regard to the errors of weights, measures, and balances that you seize as defective, or make the subject of informations?—That is a subject which is very wide indeed; it requires a great deal of judgment. For instance, you might seize a weight from a grocer or tea-dealer that you would pass if it was in the hands of a costermonger, and simply say, send it to the office and have it adjusted. A great deal of judgment has to be exercised in the matter.

2295. Would you seize it in a grocer because he sells larger quantities?—No, because he sells them at a dearer rate. A tea-dealer may sell tea at 2*s.* 6*d.* a lb.; potatoes are sometimes not a halfpenny a lb.

2296. (*The Warden of the Standards.*) Do you think that any general regulation could be framed to meet all cases, or must those cases be left a good deal to the discretion of the inspector?—I am afraid that no general regulation could be made that would meet every case.

2297. (*Chairman.*) Do you find that, considering the invidious character of the office, people often complain that in the exercise of that discretion they have not equal justice dealt them?—No, we should give our reason for it, and abide by it.

2298. Have you found much difficulty to arise from the provision of law by which you are empowered only to inform against persons using or possessing false or defective balances, and not to seize such balances in shops?—There is a great deal of difficulty in that. After coming before a magistrate and simply laying an information without being able to produce the scales themselves, it might happen that just before bringing the scales into court, they might be altered and made correct, thus throwing doubt upon the oath of the inspector.

2299. But could you keep a balance in the same condition, if you did seize it?—As a rule that could be done.

2300. May not the defect have arisen from some temporary cause, by moisture, and so on, which would have passed away before you came before the magistrates?—In some cases merely; in the case of a beam with a longer arm and a short arm, that could not occur.

2301. But sometimes for the purposes of fraud they resort to things that produce only a temporary effect?—Yes.

2302. In that case I presume you can have no evidence from seizing the scales?—No.

2303. (*The Warden of the Standards.*) For instance, pouring a quantity of water on a porcelain plate?—Yes, or letting the slime from fish remain in the hollow or cup of the scale pan, which would make the loss of the balance considerable.

2304. (*Chairman.*) Do you think that the law in that respect should be altered, and that you should be empowered to seize, at any rate, false balances, where there was evident fraud in connexion with them, if not balances which are merely accidentally or temporarily defective?—I think that would be very desirable where a real fraud has been practised, in order that it might be shown to the magistrate how it was done. It would serve the purpose of making it plain to the magistrate, for instance, that they have had a beam purposely constructed so that one arm of the beam is longer than the other, or that by lifting up the end of the beam, they could accelerate it; I mean that when one end gets a little preponderance, it goes down rapidly, and you can take from the pan a pound of flour out of 10 lbs. after the beam has once gone down, before it begins to rise again.

2305. Would not people see that?—No, they could not understand it. They would see the flour taken out, and they would see that the pan still appeared to have a preponderance, but they would not know, nor could they know, except they were good mechanicians, how this was caused and why it was.

2306. (*The Warden of the Standards.*) But the result would be that the buyer would get 9 lbs. instead of 10?—Something like that proportion.

2307. (*Chairman.*) If you were to seize the balance you would stop the man trading altogether?—Yes, you would stop him trading with that particular balance.

2308. For instance, on a Saturday night when his shop was full, if you went in and seized his balance, you would stop his trade altogether?—Yes, and if I did, I think it would serve him quite right.

2309. If you take a weight it has not the same effect?—No, he may have a good many weights, and generally speaking they have several scales, it is not often that they have only one pair of scales.

2310. Have they not generally more sets of weights than balances?—Yes, they usually have several sets of weights.

2311. To what extent are the larger weighing machines, and those with special weights showing a much larger weight on the lever principle, including steelyards, subject to your inspection?—We inspect all of them of every description, and if they are found wrong the parties are summoned and fined.

2312. Have you legal power to inspect them?—Yes; as for the portable ones up to half a cwt. or 1 cwt., we have standards for that weight. I also test the large weighbridges by using a couple of tons of weights; such weights are adjusted under my own inspection by copies of the standard 56 lbs. In order to protect myself, as I think, legally (it is perhaps only colourable), I always place a copy of the standard along with them, so I believe that I am perfectly justified in saying that they have been tested by a copy of the standard; of course it only forms a small unit of the quantity of weights used.

2313. (*The Warden of the Standards.*) Have you any difficulty in testing weighbridges in that way?—No. I cannot test them frequently, but I do so every year, and to great public advantage, for we have hundreds upon hundreds of thousands of pounds' worth of goods, coal, iron, manure, hay, straw, and various other things, sold by them in Manchester.

2314. Do you find from experience that it is necessary to test those weighbridges by very heavy weights?—Yes.

2315. If you merely test them by the ordinary standards that you have, you do not really test them at all?—Not at all; I have heard of an inspector in Lancashire testing a 20 ton weighbridge by a half cwt., a 28 lbs., 14 lbs., 7 lbs., 4 lbs., 2 lbs., and a 1 lb., and then pronouncing a 20 ton machine to be correct; I myself test our weighbridges belonging to the cor-

poration of Manchester; and if it is a 20 tons weighbridge I put 20 tons upon it, or if it is a 50 tons I put 50 tons upon it. The way I do it is this, after carefully balancing it, I have 5 or 6 tons of weights carefully adjusted, and I place them on the platform, and see how it records on the steelyard, and then I place the same quantity of pig iron, or something equally convenient, to represent the same weight on the steelyard, and then as it is an axiom in geometry that things that are equal to the same, are equal to each other, I proceed again with 5 tons more weights and see the record upon it, and so I go on till it amounts to 50 tons.

2316. Is that practised by other inspectors besides yourself?—None in England. I never heard of weighbridges being thus fully tested anywhere in the kingdom but by myself, except one in Salford, which has just been put down this year.

2317. Do you think it proper that such a practice should be adopted generally throughout the country?—I do.

2318. Do you think it absolutely necessary for securing just weight?—No doubt of it. I see no reason why people selling iron, or hay or straw, or anything else that is to be weighed over these machines, should be permitted to cheat, as they can do, and do to my certain knowledge, for I have had a number of them fined before the magistrates. But I have got such persons into very good order now; they know that an annual inspection takes place, and they take care to keep their weighing machines correct.

2319. What kind of weights do they use for those weighing machines?—Generally speaking they have what we call tail weights; but some have a sliding poise showing cwts. and half cwts.

2320. Is that on the principle of the common steelyard?—Yes, all those weighing machines are on that principle; but some have a drop at the end of the steelyard, and what they call a cheese weight is used, that is half cut through, and it slides on and the rod holds it, and other weights of the same kind. In some of the larger machines those cheese weights would represent perhaps a couple of tons. I am speaking of those large weighbridges that weigh 20 tons, and perhaps such two ton weights would be only a little larger than this weight on the table before me (*pointing to a specimen of these cheese weights*). It actually weighs perhaps about 4 lbs., but it would represent two tons on the platform.

2321. Are these cheese weights ever made of a determinate weight?—No, and I find a great deal of difficulty on that account amongst the carriers and the railway companies. They have perhaps 20 or 50 of these portable weighing machines that will weigh respectively 30 or 40 or 50 cwts., and all have those kinds of weights attached; but if you were to change from one machine to another, a weight intended to show precisely the same weight and made by the same maker, it would not act properly.

2322. Do you think it would be expedient that there should be a regulation to have all those weights of a legal denomination?—It would be very desirable indeed that they should possess some proportionate weight to the standard, whatever might be adopted; and I think it would be very desirable when that was being done, that such weights should be upon the decimal system.

2323. Do you think there would be any practical difficulty in making all such weights of a legal denomination?—I think not; it is only altering the fulcrum of the steelyard, making it longer or shorter, so as to adapt itself to the weight.

2324. There would be no practical difficulty in adapting the lever to the weight instead of the weight to the lever?—That is it; if you took the pound for a unit, you might adapt your steelyard so that it would represent a ton or half a ton, or anything you please.

2325. Are you aware that that is the law in France?—I am not; I never heard of it. It is a very good law, and a very proper practice.

2326. (*Chairman.*) Have you ever interfered with balances with balance balls?—I have. *Mr. R. Mellor.* 14 July 1869.

2327. What is your opinion of balance balls?—When I first saw them I condemned them as illegal and in fact summoned the party before the magistrate. I did it in a friendly way, not with a view of asking for a penalty, but only to obtain a decision from our stipendiary magistrate. I argued the question before him myself, and he said there was a great deal in it, but still he thought that the law would not reach it. He would not convict, but he said that it was a very proper case for the Court of Queen's Bench. I immediately called the Weights and Measures Committee together, and consulted them about the propriety of trying it in the Court of Queen's Bench; they declined to go to the Court of Queen's Bench in that case, because the man was poor; and they thought that if the costs were to fall upon him, it would bring the office, and, perhaps, the corporation itself, into some degree of odium, and it was not proceeded with. That was at a very early period, when those balance balls were first brought into use in Manchester. Since then, a case has been tried in the Court of Queen's Bench, as I dare say the Commission are aware, and the decision was in favour of the view which I took. I consulted the town clerk after that decision, and drew his attention to the fact that almost every shopkeeper had these balance balls. The matter then had become a very great one, instead of being the trivial affair that it was when I first wanted to deal with it, and when it could easily have been put down. Some thousands of these balls had got into use in the town, and the difficulty was how to act with them so as not to press harshly or hardly upon the people using them, and at the same time to prevent fraud being perpetrated, such as very often occurs. By unscrewing the ball, which is hollow, so as to be filled with shots, you may take out or put in as much weight as you like. With the approbation of the town clerk, the way I met the question was this: I got a number of those shopkeepers to come to a meeting as a deputation, and the town clerk got the mayor to preside. I attended, and showed the shot ball, and explained its use; and it was agreed to let it remain, on condition that after the scales should be balanced, they should have the shot balls rivetted fast or soldered up, so as not to be loosened at all, or at least not immediately, and the matter was so settled.

2328. If it was soldered up would it be of any use except as an ornament?—Of no use whatever that I know of.

2329. It could not then be used for the purpose of frauds?—Not easily.

2330. Supposing the balance ball was soldered up as you say, and allowed by you, would it be possible for a man to correct the balance by means of the ball, who wished honestly to do so?—No, he could not open it readily; he would have to get a scale maker to do it.

2331. He could not correct the balance without the aid of a scale maker?—Yes, he could in another way, whether he had a ball or not, because he could have a piece of lead soldered upon one end of the pan, and remove a little off it if it got too heavy, and that is in fact what the shopkeepers in Manchester agreed to adopt. There was a scale maker present with them at the time, and it was understood that such a course would be taken in future, that for adjusting there would be a small piece of lead soldered to the goods end of the scale pan, and they would regulate the balance by that.

2332. (*The Warden of the Standards.*) Is not that nearly as objectionable as the balance ball itself?—No, because that is soldered fast; it enables those men to do that for which they said they got the balance ball. They might indeed scrape off too much, but then I should catch them.

2333. Could you not catch them in the same way if they tampered with the balance ball?—No, they can regulate the balance ball very much sooner.

2334. Could not they with a pair of pincers cut off

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a piece of the solder immediately?—Yes, but then it remains so. When that is once done, they cannot put it on again, whereas in the case of a balance ball, if they make it wrong they can alter it again directly.

2335. Is your plan satisfactory to the shopkeepers?—It is; they adopt that plan now. That is the plan which the scale makers, the deputation, and myself agreed should be adopted.

2336. Do you think that the balance ball is entirely useless?—Yes; it is condemned by the judges of the land as being illegal under the present law, and therefore I was obliged to take cognizance of it. I took action at once, and in the manner I have described.

2337. Do you think if it was not illegal that it would be expedient that it should be used as a ready means of adjusting?—In the hands of an honest man it is well enough, but we have to look to other people, to men who intend to cheat, and will cheat by hook or by crook.

2338. If a man used a balance ball and used it improperly, could not you very easily catch him?—He would have the means of altering it so quickly that it is just possible that we should fail in that. For instance, upon the inspector or myself finding the scale wrong, a man might say that he was just at the moment altering the ball and regulating it; or perhaps having seen the inspector in the neighbourhood, or somebody having told him that the inspector was coming, he would say that he had spilt some shot out, or he would make some other excuse by which we could not legally get him before the magistrate and have him convicted.

2339. Do you think that such a case would happen frequently, or could you not generally pounce upon him before he could do it?—I do not like to let people go into temptation if I can help it. I always try to forbid them using things that may be improperly used, if I have the power to do it.

2340. Your opinion is decidedly against the balance ball being used?—It is; and the following is the notice which I issued after the decision of the Court of Queen's Bench.

CITY OF MANCHESTER.

WEIGHTS AND MEASURES.

Caution to Shopkeepers.

"Notice is hereby given that it has been recently decided by the Court of Queen's Bench that scales, having in connexion therewith what is known as the shot balance, are illegal: and

"Notice is hereby further given, that all persons who shall hereafter have or use any such scales will be liable to heavy penalties, and will be proceeded against according to law."

RALPH MELLOR,
Chief Inspector.

Dated this 7th day of July 1868.

2341. (*Chairman.*) Have you ever interfered with any other balances of peculiar construction, such as balances with special pans for coals?—I do not know any that we have any objection to. They have pans for weighing ½ cwts. of coal in Manchester, but they are fast and weigh correctly.

2342. (*The Warden of the Standards.*) Are not these balances with coal scoops made upon the principle for which a balance with a balance ball was declared to be illegal, that a part of it was loose and might be taken away, and thus fraud committed?—Yes.

2343. Are there not a great number of balances used where the pan may be taken off?—Yes, thousands.

2344. Is there not the same legal objection to them in every case where the pan can be taken off? Is not that a loose part?—It is a loose part, but the scale could not be weighed upon if you took it away; you could not use it; that is an integral part of the machine, or scale, or balance which, if removed, you have nowhere to put the goods on. There is a fork that goes up to the beam to hook into the swan neck, and then there are a pair of prongs upon which this plate is put. They are only as wide as my finger, probably half an inch wide, it may be more or less according to the weight that the beam is capable of weighing, and unless the pan is upon them you cannot weigh flour, potatoes, or sugar, or anything of that kind. They might weigh a piece of bacon in a lump.

2345. That is a very sensible way of looking at the matter, but that is not the way in which every inspector looks at it. Are you aware that one inspector, acting upon the precedent of a balance ball being illegal because it is a loose part, informs against every tradesman who has any balance with any moveable part, even a coal scoop?—I should not like to be that inspector. I should not like my name to be mixed up with a transaction of that sort; it is a very great convenience to a shopkeeper and to the customer to move the pan. A person comes for something that is loose, such as flour; how awkward it would be if they had to scrape it up with their hands.

2346. In the case of a coal scoop, is it not in many cases almost absolutely necessary that it should be moveable?—In some cases, but in the majority of cases with us they are not moveable. You cannot move them except on a swivel. There is a swivel that you tip up when you have got the weight in. The man who has charge of the scale tips up the hinder part and puts the goods into a bag or wheelbarrow, or a little coal waggon, or whatever the party has to take it home in; but it is still fast to the scale, and cannot be moved unless you take the whole thing away, and then it is no longer a balance.

2347. We have had it in evidence that these coal balances are made in two ways, in some the scoop moves upon an axle, but in the majority of them the scoop is loose?—I do not know that we have any in Manchester that are moveable. Of course, if anything of that sort were to come before me, it would become a question with me whether I should stop it by laying informations against the parties if they were using them in an objectionable way; but I have had nothing of that kind come before me.

2348. (*Chairman.*) Do you think it would be an improvement in the law if the inspectors in Great Britain were empowered and required to detect and inform against all frauds in connexion with weights, measures, and balances, as well as false and defective instruments; for instance, frauds in the method of weighing, as distinct from the balance itself, and frauds in making up beforehand, and selling goods in parcels of defective weight or measure?—That is what I slightly alluded to a little while ago. I have here a book containing numerous entries of fraudulent cases where the inspector has no power to interfere. Here is one entry, dated 20th January 1847. "On "visiting ...., grocer, London Road, he "was making up half-pound parcels of sugar with "$7\frac{3}{4}$ oz. in the scale." That is the sort of thing that goes on all the way through the book. All that the inspector can do is to see that the weights and scales are perfectly accurate, and then his powers are exhausted.

2349. The customers often buy those half pounds, do they not, without having them weighed?—Yes, they are made up beforehand.

2350. When they have a half pound packet offered to them, can they not insist upon its being weighed?—They have no power to do that, they can only leave the shop without buying anything. Nobody has any power to demand to see any goods weighed that are sold to him, except bread and coals.

2351. Do you think it very desirable that the law should give further power in that respect?—I think that there should be power given to somebody; at any rate, it might be given to the public themselves, as it is in the case of bread, so that they could insist upon goods being weighed in their presence, and there should be a penalty upon refusal.

2352. Are you aware that these powers and duties are imposed by law upon the inspectors of weights and

measures in Ireland?—I am not. I do not know the law upon that subject in Ireland.

2353. In your duties of inspection, and in informations laid by you, do you observe a marked distinction between cases of wilful fraud and those where there is no intent to defraud?—I do; but that is more particularly the magistrate's duty before whom the information comes. If he finds a case where there is deliberate and decided fraud, I think that as it is the duty of the inspector to bring it before the magistrate, so it is the duty of the magistrate to enforce such penalties as would deter the party from acting in such a way again.

2354. In what way do you make a distinction, do you sometimes merely caution the man when you think it is a mistake?—I caution three times to once that I summon.

2355. You caution him if you think it is a mistake, but you summon him at once when you think it is a fraud?—Yes, if it is a fraud, I at once summon him.

2356. Do you think it expedient to establish a regulation that in cases where persons convicted of fraud, or where there is culpable negligence, their names should be publicly advertized?—I would go further than that. I am of the same opinion as one of our stipendiary magistrates, who has repeatedly said, when I have been before him, that if ever he was called upon to give evidence before a Committee of either House of Parliament, he would strongly recommend that in the case of a man who had been clearly convicted of fraud two or three times, there should be a power of inflicting imprisonment on another conviction, as well as a fine, or both, and he added that he should take care to enforce this power.

2357. The object of advertizing is to deter; but are there not cases which the parties sometimes manage to keep out of the newspapers, as publicity may be a still more formidable penalty on them than the fine itself?—It is so in a great many cases; publicity is greatly feared.

2358. It injures a man's trade more?—No doubt. I would have all such cases published and republished in all the local papers.

2359. They are now published merely at the will of the reporters, are they not?—Yes, by the parties who attend the court. I allow them access to my court sheet as I call it, and they copy the names.

2360. In some cases the reporters are persuaded and bribed to keep the thing out of the papers, are they not?—That has been attempted to be done in Manchester, but I think not successfully.

2361. What is your opinion as to the employment of police officers as inspectors of weights and measures?—I think that as a rule they are very unfit for the purpose. In order to illustrate that, I have here a set of weights that were brought to me by a woman who had been fined for these very weights by the inspector. From some compunction of conscience or other reason he asked the magistrates to be allowed to give her the weights back again, and on their being readjusted by him, he stamped them. This having been done, they were afterwards brought to me. The woman was a grocer and tea-dealer. The weights were adjusted on 24th July 1863; they consist of 1 lb., ½ lb., ¼ lb., 2 oz., and 1 oz., all brass weights. On testing them in my office in her presence, I found the pound to be 2 drams 9 grains heavy, the ½ lb. 11 grains heavy, the ¼ lb. 1 dram and 10 grains heavy, the 2 oz. 3 grains heavy, and the 1 oz. to be 1 dram less 4 grains heavy. You see that there is no rule of progression in this, but it is hop, skip, and a jump all the way through, and this is a specimen of the way in which this man adjusted them (*producing some brass weights and showing them to the Commission as adjusted in a very rough way with solder running over the bottom of the weights, and even the sides*). They had been adjusted by the deputy chief constable of the county, who practises as an inspector. The way in which I adjust my weights is thus (*exhibiting another weight*), by putting lead in that small drilled hole which you observe in the bottom, and bearing the stamp, so that if any of the lead is removed the stamp goes, and it becomes illegal at once. When the Deputy Chairman of Quarter Sessions of the county before alluded to called upon me and saw the weights, I put the question to him and said, "Had you been "the magistrate presiding on the occasion when this "poor woman was brought before you, knowing what "you know now, would you have inflicted a penalty "upon the oath of that inspector or any of his assist-"ants?" and he said that he thought he should have declined. Before I made this matter public, I sent word by the woman, who is a very respectable person, to the inspector to call upon me,—he had called upon me a week or two before to get information upon the subject of weights and measures generally, which I always freely give,—and I asked her to tell him to call upon me, thinking I would speak to him quietly and show him how I did my work, and induce him to endeavour to do the same with his own in future. He told her when she went to him that he was coming the next week to Manchester, but he should not call upon Mr. Mellor; so my good intentions were frustrated, and I do not care now to keep the matter quiet.

2362. Are you aware that police officers generally receive no remuneration for their duties in connexion with weights and measures?—In our county they do.

2363. What sort of remuneration?—There is 30*l.* a year allowed to each of the superintendents for their extra duty.

2364. Considering the peculiar nature of the existing duties of inspectors of weights and measures, that they require practical experience, skill, and accuracy for the proper comparison and verification of weights and measures, and that the inspection necessarily is an office of a particularly obnoxious character, do you think, with your practical experience upon the subject, that as a general rule these duties can be efficiently performed where the inspectors receive no special remuneration for them?—I do not know. If a man knows his duty and performs it efficiently, I think he is entitled to be well paid for it.

2365. Have you ever considered whether the practice adopted in France of separating the duties of comparison and stamping weights and measures, and the duties of the inspection of weights and measures used for buying and selling, and assigning these separate duties to distinct officers of verification and inspection, the latter being undertaken by the police, is expedient in this country?—Practically that is done in Manchester, except as regards the inspection by the police. As I have explained to you, I look after the whole of the departments, both in-door and out-door, and the inspectors go out and they confine themselves to the out-door duties.

2366. Your inspectors are not policemen, I presume?—No, they are not policemen.

2367. I suppose when you first undertook the office you began by doing more of the detailed work than you do at present?—I used to do a great deal more in the first year.

2368. Were you originally inspector before you became chief inspector?—I was in-door inspector for three or four years.

2369. Do you think that the French regulation that the officers for comparing and verifying weights and measures should be engaged in no other employment, and that the districts of verification should be arranged so as to occupy the whole time of every such officer, is a good regulation?—Yes, no doubt; practically that is done by us; we have the office open every day. I may mention that if a shopkeeper is told to send in his weights which require correction, we always mark them on the stamp with a cross punched upon the lead where the stamp is. We thus know then, when we go round again, whether the weights have been sent in, because the mark will speak for itself. If they have not been sent in, I ask the reason why. The parties may have perhaps had sickness in the house, or were very poor people; this has occurred more than once, and I suppose that in some places such cases would

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have been brought before the magistrates, and they would have been fined. But I have accepted such an excuse, and it shows the necessity of having judgment and discretion in the officer superintending those things.

2370. Do you think it would be a public advantage that in all new appointments of public officers for comparing and verifying weights and measures there should first be an established test examination for the qualifications and competency of the persons to be appointed?—That would be very desirable.

2371. What sort of examination would you wish to see established?—The examiner should be somebody who understood the matter. The Warden of the Standards, for instance, or the Board of Trade, would be able to suggest means for judging of their efficiency. I think that an inspector of weights and measures, whether he acts as an adjuster and stamper of weights and measures, or whether he is an examiner of weights and measures, should have some considerable amount of mechanical knowledge, because it enables him so much better to judge as to whether an imperfect beam is the result of an accident, or is the result of carelessness, or is purposely done. I have to judge upon those things constantly, and to act upon my judgment. If in my opinion it is simply a venial matter, and an occurrence which has taken place unwittingly, I treat it in a different manner to what I should if it was a fraudulent one. In the former case I caution them, and I may tell you that all those cautions, whenever they are given, are entered in a book and noted in a kind of index.

2372. Do you see any reason why such officers should not compare and stamp gas meters as well as other measures of capacity?—The only reason is that it would perhaps take too much of their time, and that if you want a thing done well, you should confine a man to doing one thing.

2373. Has your attention been directed to the provisions for adding to the duties of inspectors of weights and measures the inspection of petroleum and of adulteration of food?—That is a duty given to the inspectors of weights and measures by the Act of Parliament. But when the Petroleum Act came into force, the Watch Committee, very much to my gratification, kindly took it out of my hands and put it in the hands of the chief constable, and I was grateful beyond measure that I have not had that duty to discharge along with other matters.

2374. Do you not think that the inspection of petroleum ought, for the safety of the public, to be in the hands of somebody who has some chemical knowledge?—Yes, I think so; that is, knowledge appertaining to the thing they have to do.

2375. Do you think that the practice adopted in France of issuing general specific and detailed instructions from a Government department to inspectors of weights and measures for the discharge of their duties, in order to ensure uniformity of action and due compliance with the requirements of the law, would tend to the public advantage if authorized and adopted in this country?—No doubt. But it would have to be carried further than that; you would require someone to look after the inspectors in the various localities. I have always contended that if you wish to do that which Parliament has been trying to do ever since the time of King John, namely, to have uniformity of weights and measures throughout the realm, you must have a department like this, from whence must emanate all those instructions alluded to, and you must have somebody to go round and visit every inspector, and see that he carries them out. It is no use issuing instructions to parties, unless you have an opportunity of checking them and seeing whether they do carry them out or not.

2376. Then you would be in favour of the expediency of appointing one or two Government officers in subordination to the Board of Trade to supervise from time to time, under established regulations, the standards, apparatus, and operations of the local inspectors?—No doubt of it; I think it would be one of the most useful things that Government and Parliament could do, because it would obtain that which we have been seeking to obtain for centuries and have been unable to do it, namely, uniformity.

2377. Do you see any objection to a regulation being established by law under which the inspectors should be required to furnish periodically to the Board of Trade such information connected with the discharge of their duties as should be called for in a separate specified form, and of a similar character to that called for by the Commission for the year 1866?—I think that ought to be done annually by every inspector. I think that the Board of Trade ought to have full cognizance of what is going on by every local inspector in the kingdom.

2378. (*The Warden of the Standards.*) With respect to such articles as tea, sugar, flour, &c., that are commonly made up in parcels ready for sale by shopkeepers in a populous neighbourhood, and which purport to be of a specified weight, do you think it would be a beneficial regulation to compel all such parcels to have the weight legibly marked on the outside, and that the inspector should be empowered to weigh them and seize them if found defective, and the offender be liable to a penalty similar to that for having defective weights and measures?—I am afraid that that would interfere too much with the liberty of the subject; it may be a very proper regulation in some respects, but I think that shopkeepers would protest most strenuously against it. I think the better plan would be to adopt the principle of the Bread Act, and apply it to all articles that are sold. I have issued notices and placards like those which you have been good enough to look at, and they have been left in the hands of every shopkeeper in Manchester. This is one of them.

"BREAD.

"PUBLIC NOTICE.—CAUTION.

"*Weights and Measures.*

"Notice is hereby given, that by the 6th and 7th "William the Fourth, cap. 37, it is enacted (sec. 4) "that all bread (except French or fancy bread or "rolls) shall be sold by weight; and any person who "shall sell, or cause to be sold, bread in any other "manner than by weight, is made liable to a penalty "of 40*s*. It is also in and by the said Act provided, "that all bread sold (except as aforesaid) shall be "weighed in the presence of the purchaser; and that "any person selling from any cart or other carriage, "shall constantly carry in such cart or carriage a "correct beam and scales, with proper weights; and "also that any seller of bread who shall at any time "be so unprovided with such beam and scales and "proper weights, or who shall refuse so to weigh any "bread purchased of him, shall be liable to a penalty "of 5*l*.

"By order of the Mayor,

"JOSEPH HERON,

"Town Hall, Manchester. Town Clerk."

I have also had thousands of them printed in large placards and posted up in the town by hundreds once a fortnight, so that they have been before the public perhaps for six months, in order to prevent the public losing sight of them, and to give them the advantage of seeing what the law of the case was, and how they could help themselves.

2379. (*Chairman.*) You stated, I think, that you thought it would be right that the public should have the power of requiring small parcels, such as half pounds of tea, to be weighed in the presence of the purchaser?—Yes.

2380. (*The Warden of the Standards.*) You think that a provision requiring that the shopkeepers should be compelled to weigh every parcel of that kind under a penalty, whenever a purchaser wished it, would meet the case?—Yes, I think so, and I think in a better way, it would not be so arbitrary.

2381. Are there any other officers of inspection in your district, such as courts leet or annoyance juries?

—No; the corporation of Manchester a great many years ago purchased all the manorial rights of Sir Oswald Mosley, who was lord of the manor. Of course he had a leet jury for the inspection of weights and measures and the examination of them in the township of Manchester. But the city of Manchester comprises several other townships, Ardwick, Chorlton-upon-Medlock, Hulme, the best part of Beswick, and Cheetham. There are several townships, and his jurisdiction simply extended over the township of Manchester, and not the city proper at all, as it is constituted now.

2382. Do you know any other districts of inspection where the old system is still in force?—Not in our neighbourhood; we have no leet jury going round. I think it a very foolish thing, and it ought to be abolished altogether.

2383. Have you had much opportunity of observing how the duties of inspection are performed in other districts of the country?—I have brought before your notice the manner in which it is done in one county, and I know a good many others that are very similar.

2384. Do you think upon the whole that the system is satisfactory?—I do not.

2385. With regard to the system of appointing inspectors in municipal boroughs by town councils, has that case come under your observation?—It has; when I was appointed first, 25 years ago, I was appointed by the magistrates. I may state that our clerk to the magistrates was instructed by them to get a legal opinion as to who had the appointment legally in their hands, and the late Lord Campbell, then Sir John Campbell, was one who gave his opinion; I forget who was the other. They decidedly said that the appointment lay in the body of magistrates, and the appointment was accordingly made by them. I know that in other places it has been made by others; in one instance I think, by the recorder of the borough alone, and it was held to be illegal.

2386. Are you aware that there are a great number of boroughs throughout the kingdom, where, under the Municipal Corporations Act, the town council have full authority over the inspection of weights and measures?—I beg your pardon. I now see that I did not complete my answer to your former question. I stated that when I was appointed 25 years ago, I was appointed by the magistrates. One of my out-door inspectors died in 1865, after the Act of 1859 or 1862 giving the power to the town council; and consequently at his death, the next appointment rested with the town council, and I and the other inspectors, all three of us, became immediately the servants of the corporation and no longer of the magistrates.

2387. (*Chairman.*) Do you still continue to be the servant of the magistrates?—Yes, by bringing the cases before them.

2388. Were you not under the corporation till your third colleague died?—Not as to the appointment of inspectors.

2389. Did you form a joint body, so that a new appointment had to be made of the whole?—The appointment of the new inspectors had then to be made by the town council.

2390. Did that affect you, that is to say, did they re-appoint you and your colleague?—Yes, we are appointed every year now.

2391. Did you begin to be appointed by the corporation as soon as the Municipal Corporations Act passed?—No; the appointments were already made, and we continued to act, and we acted legally. We are now appointed every year.

2392. So the out-door inspector's death changed not only his successor's relation to the corporation, but your relation also?—Yes.

2393. Because of his death you became under a different authority?—Yes, under a different law, under a different power of appointment. When the mayor is installed on the 9th of every November, we have this warrant signed by the mayor, which is our authority for visiting shops, and so forth. It used to be granted by the magistrates.

The Witness delivered in the following warrant:—

"To William Henry Rook, inspector of weights and measures for the city of Manchester, and to all others whom it may concern. Whereas you the said William Henry Rook have been duly appointed, and now are an inspector of weights and measures for the said city. Now I, John Marsland Bennett, Mayor of the said city, in pursuance of the statutes in such case made and provided, do hereby authorize you the said William Henry Rook, at all seasonable times between the day of the date hereof and the ninth day of November next ensuing, to enter any shop, store, warehouse, stall, yard, and any open ground, public street, lane, thoroughfare, and other open place whatsoever within the said city, wherein goods shall be exposed or kept for sale, or shall be weighed for conveyance or carriage, and there to examine all weights, measures, steelyards, and other weighing machines, and to try and compare the same with the copies of the imperial standard weights and measures provided under the said Act for the use of the said city; and if upon such examination, it shall appear that the said weights and measures are light or otherwise unjust, then you do seize the same, to the end that justice may be done in the premises according to law.

"Herein fail not.

"In witness whereof I have hereunto set my hand, and have in pursuance of an order of the council of the said city, caused the corporate common seal of the said council to be hereunto affixed this ninth day of November 1864."

"J. M. Bennett.
"Mayor."

2394. Was it provided by the Act of Parliament that on the death of your colleague you should come under new jurisdiction?—Yes, by the 22nd and 23rd of Victoria, chapter 26, passed upon the 13th of August 1859.

2395. What provision does it make concerning the death of any inspector, and its effect upon his colleagues?—There was obliged to be a fresh appointment, and on the new inspector being determined by this clause to come under the corporation entirely, we had to fall under the same rules as himself.

2396. Was there any doubt then upon the subject until the death of the inspector, as to who would have the power of appointing you?—No, there was no doubt. It was this law coming into force, and having a new appointment to make in lieu of this man who died, that upset all the regulations which had been in force before, and we then came under the powers of the town council only.

2397. (*The Warden of the Standards.*) I was speaking rather of municipal boroughs which have town councils, and not of cities where there are corporations?—I think it is very objectionable indeed that town councils should have any appointment of inspectors of weights and measures at all. It will strike you, I think, that it is reasonable that they should not have, because we find that a number of those town councillors may themselves be shopkeepers, and how can a man be expected to act independently and justly when one of the very men by whom he is appointed may have an information laid against him the next week.

2398. (*Chairman.*) Do you think he would be inclined to pull up his opponents in the town council rather than those who voted for him?—That would not occur in my case, but it puts me in a very invidious position, and I do not like it.

2399. Would the appointment of the inspector by the town council ever be a party contest in the town council?—I think not; but an information would very naturally embitter the spirit of a town councillor against an inspector, and he might try to get him dismissed from his post. That is one of the things that I protest against, because I have always endeavoured to act, since I became inspector of weights and measures,

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with a degree of independence either of party or municipal officer or individual. As a proof of that, I may tell the Commission that I once summoned the manager for the gas department of the corporation. This departmen thad a number of bad weights which they had been ordered to send in for adjustment, and had neglected to do so, and on going again, this was found to be still the case, and I summoned the manager. The clerk to the magistrates asked me when I summoned the gas manager as being the head of the department, if I did not think I had summoned the wrong man, and said, he thought I ought to have summoned the mayor. I did not go that length, but I summoned his deputy, the chief officer in the department over which he presided, and he was fined; and the stipendiary magistrate said, he hoped it would go forth that Mr. Mellor was no respecter of persons, but would see justice done impartially, as far as he was able, in carrying out the duties of his office.

2400. Did the corporation have to pay the fine?—Yes; it was taking it out of one pocket and putting it into the other. All those fines go into one common fund; it is all paid to the treasurer of the corporation.

2401. (*The Warden of the Standards.*) What is the average number of shops that you think you could visit or inspect in a single day?—From 30 to 40.

2402. In the table of the per-centage of convictions on the number of shops visited for each year from 1845 down to the present time, which is contained in your annual report for 1866, it appears that the per-centage has gradually become less and less, descending from 39 per 1,000 in 1845 to only 4 in 1866?—That is so.

2403. And do you attribute this reduction to the vigilant mode in which the inspection has been performed, and the heavy penalties inflicted by the magistrates in cases where fraud has been proved?—I do.

2404. Can you tell what is about the average per-centage of fraudulent cases out of the total number of convictions?—I am not prepared to answer that; but I may just say as respects that, if a shopkeeper is selling short weight, whether unknowingly or fraudulently, his customer suffers just as much in the one case as he does in the other; the only distinction is a moral one, that the man is probably guiltless in his wishes and disposition in the one case, and in the other he is wilfully not only breaking the law but defrauding his customer. I do not think that in analogous cases, that is to say, if there was a flour scale which from some cause or other had become wrong to the extent of an ounce, we will say, by a little accumulation of flour inside of it, the removal of which might reduce the deficiency probably to half an ounce, in that case I do not think it would be wise to let the man entirely escape the consequences of his neglect; because we know that his customers must suffer just as much as if he had put an ounce weight underneath the scale for the purpose of fraudulently cheating the public. But that is a matter which is quite as much for the discretion of the magistrate before whom the case is brought, as it is for the inspector.

2405. (*Chairman.*) I think you said that you always made some difference between cases where the weights were fraudulently defective, and cases where through sickness or some other cause the weights had not been adjusted, and that in the latter case you generally cautioned before you summoned them?—Generally speaking that is done. As I have said before, I excuse three with a caution where I summon one.

2406. (*The Warden of the Standards.*) You seem to think that as a general rule the weights and measures and balances in shops are kept correct, or that shopkeepers endeavour to keep them so?—I believe that is the rule and fraudulent cases the exception. I may state that when the alteration took place about 20 years ago, by which I was made chief inspector and responsible for the whole of the duties of the department over which I now preside, I asked for instructions for the out-door inspectors, but the clerk to the magistrates, on their behalf, said that they could not give me instructions for my inspectors, as I was held by the magistrates to be responsible for their acts as well as for my own, and that I must give them my instructions myself. This is a copy of the instructions I gave them.

"General Instructions to the Out-door Inspectors of Weights and Measures for the Borough of Manchester.

"1. It is the first direction of the chief inspector that every person visited by the out-door inspectors of weights and measures be treated courteously and respectfully; of course the inspectors will see that their assistants act in strict conformity with these instructions.

"2. Full particulars of the daily duties performed, together with the result of each visit by the inspectors, are to be entered in the pocket journals provided for that purpose.

"3. Mr. W. H. Rook is styled No. 1 inspector, and the district for the present assigned to him for inspection, and denominated No. 1 district, is that part of the municipal borough on the south-west side of Market Street and the continuous streets. Mr. J. Sutton is styled No. 2 inspector, and his, or No. 2 district, will at present be the remainder of the municipal borough situate on the north-east side of Market Street and continuous streets.

"4. Every morning before going out on duty, each inspector will enter in the diary what part of his district he is about to visit, and be ready to go out not later than 9 a.m.

"5. Each inspector will carefully study the Weights and Measures Act, 5th & 6th William Fourth, cap. 63; also that part of the Manchester Markets Act relating to coal weighing machines, and act with strict conformity therewith.

"6. Great discrimination and judgment will be requisite in making seizures of weights and measures, or laying informations about scales, care always being taken not to bring frivolous or vexatious cases before the magistrates, or which cannot be *fully substantiated;* on the other hand it will be the especial duty of the inspectors to *detect fraud,* particularly where the articles dealt in are the ordinary *necessaries* of life, so that every protection which the law contemplates may be given to all parties especially the poor.

"7. In all cases where the inspector feels it to be his duty to make a seizure of weights or measures or report inaccuracies of scales, he will first be careful to request the *owner* of the establishment, or his or her representative, to notice the deficiency, &c. of the weights or measures about to be seized or the extent to which the scales are unjust. It is also at all times desirable that the shopkeeper or party whose weights and measures, &c. are under examination, be requested to be present during such examination, in order that he may see justice is done him by the inspectors.

"8. In examining weights and measures, &c. it will be necessary to notice their position, particularly of those seized or reported, whether in or near the scales, or on the counter or place where they are likely to be used.

"9. Each inspector is held strictly responsible for all acts done by him, or his assistants, or for any neglect of duty on the part of himself or them.

"10. The attention of the inspectors is drawn to the small tickets containing "directions to shopkeepers and others," one of which is directed to be left at *every* place visited. The notices to adjust scales or weighing machines are to be filled up and left at warehouses and wholesale places of business as required.

"11. The chief inspector will from time to time

give such further and more particular directions as may appear desirable.

"R. Mellor,
Chief Inspector of
Office of Weights and Weights and Measures."
Measures, Manchester,
1st May 1848."

2407. I perceive also that in your comparative table from 1845 to 1866 of receipts from fines and produce of forfeited goods, set against the expenditure for salaries and expenses of out-door inspection, the receipts have progressively decreased whilst the expenditure has increased, has it not?—It has.

2408. Although in this respect an increased charge has been entailed, do you consider that upon the whole the public have benefited in consequence of their obtaining more just weight and measure, and being less subjected to fraud?—That I think is proved by the observation which you made upon the per-centage of people who have been fined in late years as compared with what there were formerly; they have decreased very materially, thereby showing that this extra expenditure has been money well spent.

2409. In fact, that it has acted as a preventive of fraud and imposition upon the public?—No doubt.

2410. (*Chairman.*) Have you any further information to give the Commission upon the subjects to which your attention has been drawn?—I would produce this as a sample weight to show the ingenuity of people in cheating (*producing a weight and describing the same*). It is a weight which is cast from another weight, and it is an exact *fac-simile* in outward appearance; if you look closely, there is a sort of rough mark of a stamp having been here, in the centre of the weight, showing that it was originally cast from a stamped weight. The man who did it was no fool; but it is entirely hollow; it weighs only about 11 ozs., although representing itself as 2 lbs., and it would deceive any inspector who did not lift it. From merely looking at it, I should have called it a good weight, but it is a complete shell. *Mr. R. Mellor.* 14 July 1869.

2411. (*Chairman.*) Do you generally take up weights when you inspect them?—Yes, and we have other means of getting at the roguery of those people.

2412. (*The Warden of the Standards.*) Is that a weight that you actually seized?—Yes, in Manchester. The man was a marine store dealer. We had known for several years that he had been practising fraud, but we never could discover the way in which he did it. Eventually one Saturday night we came across him, and he had this. He had a very ingenious contrivance in addition to that, which induced me to make the observation how clever he was. Underneath the weight end of his scale, he had a piece of wood nailed on two ribs, and on this ledge, for it formed a sort of drawer or a place for a drawer, he could put a weight, a 2 lb. or a 4 lb., and if the inspector came in, simply by raising the chain or lowering one of the corners of the scale, this weight would drop out of itself, and he would have the appearance of being a very innocent individual indeed. Still he had the means of committing fraud to a very large extent.

The witness withdrew.

Adjourned to Wednesday next, at 11 a.m.

Wednesday, 21st July 1869.

PRESENT:

THE ASTRONOMER ROYAL IN THE CHAIR.

LORD COLCHESTER.
THE PRESIDENT OF THE ROYAL SOCIETY.
THE MASTER OF THE MINT.
PROFESSOR W. HALLOWS MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

MR. THOMAS ECCLESTON GIBB, examined. *Mr. T. E. Gibb.* 21 July 1869.

2413. (*Chairman.*) You are, I believe, the vestry clerk of the parish of St. Pancras?—Yes.

2414. Is the verification and stamping as well as the inspection of weights and measures in the parish of St. Pancras carried out under a local Act?—Yes, not under the general Act.

2415. You have perhaps some acquaintance with the Local Acts of the metropolitan parishes of Paddington and Marylebone?—Yes.

2416. Is it correct that similar clauses to those in the Local Act of St. Pancras are contained in the Local Acts for those parishes?—Yes, the chief difference being that in Marylebone the number of inspectors is limited to a number not exceeding 20.

2417. Is there no such limitation in the other parishes?—No.

2418. Do you happen to know any other Local Acts which contain similar clauses?—I know that in the case of Islington there are somewhat similar clauses, although they differ from ours in detail. The appointment there is made by the vestry, who appoint three churchwardens, three overseers, and six inhabitants of the parish to form a jury, and they exercise all the powers of a leet jury.

2419. In all those cases the local Act supersedes the general Act?—Yes.

2420. Is the stamping and the inspection of weights and measures in the parish of St. Pancras carried out exclusively under the local act without reference to the provisions of the general Act, the 5th and 6th of William the Fourth, cap. 63?—It is almost exclusively so. The stamper and the inspectors both regard the 27th clause of the general Act of 1835, which provides that weights and measures once stamped need not be restamped, as applicable to them.

2421. That section is as follows: "And be it "enacted, that no weight or measure duly stamped "by any inspector appointed under the authority of "the said Act hereby repealed, or this Act, or by "any other person or persons legally authorized to "examine and stamp any weights or measures, shall "be liable to be restamped, although the same be "used in any other place than that at which the "same was originally stamped, but shall be considered "as a legal weight or measure throughout the United "Kingdom, unless found to be defective or unjust;" it appears from your statement that that is the only clause which is considered applicable to the parish of St. Pancras?—That is so; that is to say, not that the Act makes it applicable to St. Pancras, because the 45th clause exempts us from the operation of that Act, but as a matter of practice we notice that clause.

2422. By section 45 of the general Act of 1835, which is as follows: "Provided always, and be it "enacted, that nothing in this Act contained shall "extend, or be construed to extend to supersede, "limit, take away, lessen, or prevent the authority "which any person or persons, bodies politic or cor-"porate, or any person appointed at any court leet "for any hundred or manor, or any jury or ward "inquest, may have or possess for the examining, "regulating, seizing, breaking or destroying any

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" weights, balances, or measures, within their respec-
" tive jurisdictions," and so on, the powers of the parish of St. Pancras are preserved intact?—Yes.

2423. So that we may understand that the powers relating to weights and measures previously conferred by the local Acts were in fact expressly reserved by that section which I have just read?—Yes.

2424. What was the date of your local Act?—The 59th of George the Third, chapter 39, was passed on 19th May 1819.

2425. Does the county inspector of weights and measures exercise any inspection in your parish?—I have not heard of any.

2426. Has there been any question of his interference with your powers?—I have not heard of any such interference.

2427. It appears by your local Act that the verification and stamping of weights and measures forms no part of the duties of the inspector?—No, it does not.

2428. Are those duties performed by the master of the workhouse, or by other persons specially authorized by the vestry?—By a person specially authorized, but not by the master of the workhouse at present.

2429. The office of the master of the workhouse is vacant at the present time, is it not?—There is only a temporary suspension, and I do not allude to that. The vestry some time ago appointed a person to hold the office, distinct from the office of master of the workhouse, the guardians having objected to the master of the workhouse holding the office of stamper.

2430. It had been the rule in St. Pancras for some time, but it has now been abandoned?—Yes; up to the passing of Mr. Gathorne Hardy's Act, under which new guardians were appointed. They at once objected to the master of the workhouse being the stamper, and an independent person was appointed.

2431. But still the duties of verification, stamping, and inspecting are entrusted to separate officers?—Yes; the former to that one officer whom we call the stamper.

2432. Are the entire duties of verification and stamping, and of inspecting, respectively discharged by one person?—No; not the inspecting. The weights that are brought to the office are verified and compared by the person whom we call the stamper. The leet jury go round and examine the weights and measures, but they undertake no part of the comparing or verifying, except for the purpose of fining; they do not stamp.

2433. (*Lord Colchester.*) Is there a double system of inspection, by the stamper and the leet jury also?—No; the jury inspect from door to door, and if any weight is found defective the person who has it is advised to go to the stamper with it, and the stamper upon application compares it with his testing weights and stamps it if it is good.

2434. You have nothing to do with the inspection personally?—Nothing whatever.

2435. (*Chairman.*) The juries in that capacity are of that class which are known by the name of annoyance juries?—Yes.

2436. The date of that custom of the progress of juries from door to door is very ancient, is it not?—It is very ancient.

2437. Are you aware that the earliest known statute under which they acted, the Assize of Bread and Ale, made in 1266, has been repealed?—Yes; it is repealed by the Act of the 5th of George IV., chapter 74.

2438. The person who actually compares the weights and measures and the person who stamps them is the same?—Yes.

2439. And that is a person who is appointed by the vestry?—Yes.

2440. Does he execute the duty himself, or has he assistance?—He has no assistance; he executes the whole duty himself.

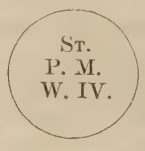
2441. Has he a proper stamping office?—Yes.

2442. Where is its locality?—It is situated in the basement of the vestry hall. It is a small room, only just sufficient for the purposes of his duty.

2443. Is it a convenient place for the attendance of the public?—Yes, it is quite convenient, and it is open twice a week, on Wednesdays from 9 till 12, and on Thursdays from 9 till 10.

2444. Is the stamping done by steel stamps?—Yes.

2445. Have you any of the stamps here?—I have not any of the stamps, but I have an impression (*producing the same*), and it is in this form—



2446. Do you ever compare again and re-stamp weights and measures that have previously been stamped?—We do. We take no notice whether they have been previously stamped or not. If persons present them to be re-stamped, we re-stamp them and charge a fee.

2447. Do you make a fresh impression with the stamp?—Yes, and if a person brings a weight stamped with the county stamp, we re-stamp it with the parish stamp if he wishes it.

2448. Whether they have been previously stamped in your own district or in any other district is a matter of indifference to you?—Yes.

2449. Section 38 of your Local Act speaks of balances and it runs thus " And be it further enacted,
" that there shall be provided and kept, at the work-
" house in the said parish, a common balance and
" common weights, sealed according to the standard
" in the Exchequer, or such other standard as shall
" be by law used in the county of Middlesex, not to
" be removed from the said workhouse, and a dupli-
" cate or duplicates thereof, to be used by the said
" inspectors in the execution of their duty; which
" said balances, weights, and measures shall be paid
" for out of any of the monies in the hands of the
" treasurer or treasurers to the said vestrymen; and
" it shall be the duty of the master of the said work-
" house or any other person to be authorized and
" appointed by the said vestrymen for that purpose,
" to attend at the said workhouse on every Thursday
" or oftener in every week if he shall be thereunto
" required by the said vestrymen, for the special pur-
" pose of sizing, sealing, marking, or stamping all
" balances, weights, and measures, that may be
" brought by any inhabitant or inhabitants of the said
" parish; and every such master of the said workhouse
" for the time being, or such other person as aforesaid,
" is hereby required, on application to him made,
" to size and seal, and also to mark or stamp, all
" balances, weights, and measures, which shall be
" brought to him for that purpose, and which shall be
" agreeable to the standard aforesaid; and the said
" master of the workhouse shall demand and receive
" for each balance, weight, and measure so by him
" sealed and marked as aforesaid, for his pains and
" trouble therein, the fees following, and no more,"
" And all balances, weights, and measures belonging
" to persons dealing by weight or measure within the
" said parish of Saint Pancras, not marked or stamped
" in manner before directed, shall be deemed unlaw-
" ful; and it shall and may be lawful to and for the
" said inspectors, or any four or more of them, and
" they are hereby authorized and required, to destroy
" all such unlawful balances, weights, and measures,
" and to amerce the owner or owners thereof in such
" penalty or penalties as herein-before mentioned"?—Yes, the fee for stamping a balance as set forth in the Local Act, being one farthing.

2450. Taking that as the provision in the Act, is this provision fully carried out? Are the balances actually tested and stamped?—No, the provision is not carried out; it seems to have grown into a practice in the parish for persons who have defective

balances to be recommended to take them to a scale maker. The jury adopt that principle, and the stamper informs me that he has adopted it.

2451. Then it is a practice of the vestrymen to examine the balances so far as to see if there is any fault in them?—The leet jury do that.

2452. If they discover an error in a balance, it has not been their practice to seize the balance or to inflict a fine?—If it is a bad case the balance is seized, but if it is not a bad case a notice is given, and if the error is not remedied when the jury call on the second occasion the balance is seized.

2453. (*Lord Colchester.*) Under what power are the balances seized?—Under the local Act.

2454. I believe there is no power of seizing balances under any general Act?—I do not think there is any reference to seizing balances in the general Act.

2455. (*Chairman.*) It appears from the returns in this office that two complete sets of copies of the official standards have been officially verified for the parish of St. Pancras, consisting of avoirdupois weights, measures of capacity, and standard yards, and that in the indenture of verification it is stated that they are to be delivered into the custody of the master of the workhouse. That would be some other officer now, I presume?—Yes.

2456. Whether it be the master of the workhouse or somebody else, is he responsible to the vestry for their safe custody?—He is.

2457. Are you aware that by the provisions of the late Acts of Parliament the standards of weights and measures ought to be re-verified within certain periods?—Yes.

2458. Who is responsible for doing that in your parish?—The usual custom has been for the stamper to represent to the vestry that it is the time for re-verifying them, and then the vestry make an order directing the vestry clerk to send them to be so re-verified.

2459. Do the jury of inspectors use one of the two sets that you have mentioned?—Yes.

2460. Have you any standard troy weights?—No.

2461. Have you any decimal bullion weights?—No.

2462. What measure is taken with regard to the troy weights which are used by tradesmen in your parish? Are they examined by anybody?—The stamper has informed me that he never had a troy weight or a bullion weight presented for stamping, and the jury, I believe, have never gone to any place where they were used. I have inquired, and I cannot find that they have ever been to any place where either of those sorts of weights have been used.

2463. I presume that in your office books are kept in which are entered the weights and measures which are compared and stamped, and the fees received?—Yes; the stamper enters in a book a description of the weights and measures stamped, and an account of the fees received. This book is checked every quarter by a clerk in the vestry clerk's office, and a moiety of the fees is paid over to the clerk to the directors of the poor, and the other moiety is retained by the stamper.

2464. Have you a specimen of the book here?—Yes, I have a specimen of a book which we brought into use about the 22nd of January 1868, based on the return that we were asked for from this office, and it is as follows:—

St. Pancras, Middlesex.

Number and Description of Weights and Measures Stamped or Adjusted.

(*On the left-hand page.*)

Name.	Address.	Date.	Avoirdupois Weights.													
			56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drms.	4 drms.	1 dram.	½ dram.

(*On the right-hand page.*)

Liquid Measures.									Wooden Measures for Dry Goods.						Measures of length.	Total.	Fees received.	Remarks.
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Quart.	Pint.	½ Pint.	Gill.	½ Gill.	Bushel.	½ Bushel.	Peck.	½ Peck.	¼ Peck or ½ Gill.	Quart.	Yard.		£ s. d.	

2465. The Commission have received a return from your parish for 1866, which stated that in that year there were compared and stamped 5,724 avoirdupois weights, 5,629 liquid measures of capacity, three dry measures, and no measures of length apparently; are you able to state the number in the two years since, in 1867 and 1868?—In 1867 I have not the number very accurately, but I can give it thereabout. There were 3,573 avoirdupois weights, 3,048 liquid measures, no dry measures, and 580

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measures of length. In 1868, of avoirdupois weights there were 3,777, of liquid measures 2,844, of dry measures 6, and of measures of length 576.

2466. It appears that with the exception of measures of length, those numbers are far below those in 1866; what has made that difference?—I think that the difference as regards liquid measures has been principally caused by the practice of doing away with pewter pots in public-houses.

2467. The reduction in the number is very considerable?—Yes, and I understand that is the cause. The stamper we have now was the master of the workhouse and stamper 10 or 15 years ago, and he tells me that at that time he had a gross of those pewter pots to a dozen now; they have been gradually reduced from that number to the present.

2468. Have you any lists of the different denominations of weights and measures so compared?—No, I have only the gross number. I have the particulars in the form which I have handed in since this book was adopted in January 1868. Before that date we had no particulars of the denominations of the weights.

2469. In s. 38 of your local Act the fees for stamping are not the same as those under the General Act of 1835; in that respect do you refer to your own Local Act or to the General Act?—To our own Local Act, with one slight exception, that is to say, for ale and milk measures we charge a farthing instead of a penny as provided by the Local Act.

2470. Was the charge of a penny found oppressive?—Probably so. It has been a farthing for many years, and I cannot find out when it was altered from a penny. In the adjoining parish of Marylebone the charge is a farthing by their Local Act, although in Paddington it is a penny.

2471. Who receives those fees?—The stamper receives them and pays one moiety to the directors of the poor for the relief of the poor rate.

2472. In the year 1866, according to the return which came to us, the sum of 18*l.*, the amount of the fees for stamping, was paid to the master of the workhouse and directors of the poor; did half that sum go to the poor fund?—The master got one half and the poor fund the other half.

2473. Was that 18*l.* the entire amount?—The entire amount.

2474. Do you think that the amount has varied materially in later years?—It is reduced very materially.

2475. In consequence of that great reduction in the number of pots that you referred to?—Yes, in the number of pewter pots.

2476. What other salary or emolument does the master of the workhouse, or the person who stamps, receive?—He has no other emolument.

2477. He has emolument in virtue of his position as master of the workhouse, has he not?—He would have, but at present the master of the workhouse is not the stamper, but a person separately appointed.

2478. Does the actual stamper at this time receive nothing but the fees?—Nothing whatever except the fees.

2479. You are cognizant, no doubt, of the exact method in which weights are compared with the standard weights?—Yes.

2480. Could you describe it to the Commission?—We have four pairs of beam scales used for the various sized weights; the test weight is put in one scale, and the weight to be compared in the other. Usually they are tried in each scale, that is to say, they are reversed.

2481. Four scales appear to be a very common outfit for an inspector?—I think so.

2482. How do you compare measures of capacity?—Liquid measures we compare by filling the test measure with water, and pouring the contents into the measure to be compared. With regard to dry measures, the test measure is filled with seed, and the contents poured into the measure to be compared.

2483. How do you compare measures of length, I presume the yard only is compared?—We have a bed according to the pattern in the Standards Office, and the yard measure to be tested is laid in the bed.

2484. How many persons are appointed to act on the leet jury?—In the present year there are 63.

2485. Do you find that a great number of them never attend?—Most of them attend, they are liable to a fine if they do not. Most of them, perhaps all, attend at least once or twice.

2486. In the progress from door to door how many of them go?—Four is a quorum, but usually about six attend. The whole 63 are not in one group, but are divided into four groups, each group taking one district, which contains two wards of the parish.

2487. Has any difficulty been found in selecting and appointing the inspectors?—There are generally about twice as many summoned in the first instance as we get to serve, about one half of the number summoned are excused for various reasons.

2488. And how far has the vestry any control in all those matters, either in the appointment or in the superintendence of the duties of the inspectors?—The vestry make the appointment. A committee of vestrymen select about 160 names from the rate book, and they take them promiscuously. They decide to take, say the third name on every tenth page, and if that person happens to be a woman, or a person not eligible they pass on to the next. The whole 160 are summoned, and the vestry select about 70 usually, or as near 70 as they can get from the whole number.

2489. Are the vestry enabled to enforce their attendance?—Yes, by fining them if they do not attend.

2490. I suppose that some of the vestry are shopkeepers, and themselves subject to being inspected?—Yes.

2491. Have you any idea what the proportion would be?—About one fourth.

2492. And the same would apply to the jury, I presume?—The proportion is about 15 out of 63, very nearly the same.

2493. Does the vestry really exercise the power of fining recusants?—They do not often do so. Usually the person is summoned to the vestry, and is cautioned, and that is generally sufficient to make him attend to his duties.

2494. Is an account of those fines kept?—Yes. In 1866 we had no fines, in 1867 there was one fine of 5*l.*, and in 1868 there was one fine of 2*l.* and a fine of 5*l.* with 5*s.* 6*d.* costs, making the total for the three years 12*l.* 5*s.* 6*d.*

2495. Do those fines go to the fund for the poor?—Yes.

2496. What was the population of St. Pancras at the last census?—The population of St. Pancras at the last census was 198,882. It is now estimated by our medical officer, with the assistance of the Registrar General's Returns, to be about 221,000.

2497. In that number how many are householders who are liable to be called upon to serve as inspectors?—My estimate must be taken roughly. I scarcely have the means to ascertain it correctly, but I should think about 14,000. I could not give the number more accurately without counting the rate book, which would be an enormous labour.

2498. Perhaps you have no accurate data also for the number of shopkeepers?—No, that would be more difficult still. As near as I can tell there would be about 5,000.

2499. How often is the inspection performed?—Once a month at least, sometimes twice a month in each district.

2500. Dividing the parish as you have stated into four districts, can a sufficient number of persons be found to carry out the inspections?—Yes.

2501. Do they go from house to house and require all balances, weights, and measures to be produced?—Yes.

2502. They are accompanied, I presume, by some person carrying the standards?—Yes, by a beadle.

2503. Has any report lately been made by the itinerant jury to the vestry?—No special report; only the usual reports of the persons fined, which I have here in detail, on separate sheets, signed by the inspectors, from 25th June 1868 to 6th May 1869. This is a specimen sheet.

PARISH OF SAINT PANCRAS, IN THE COUNTY OF MIDDLESEX.

WE, Whose Names are hereunto subscribed, being Inspectors of Balances, Weights, and Measures, appointed in pursuance of an Act of Parliament, made in the Fifty-ninth Year of the Reign of King George the Third, intituled "An Act for establishing a Select Vestry in the Parish of St. Pancras, in the County "of Middlesex, and for other Purposes relating thereto;" Do, by Virtue of our Office, and according to the directions of the said Act, AMERCE the several persons whose names are undermentioned, in the sums of Money affixed to their Names respectively, as penalties incurred by them for Offences committed against the said Act, that is to say:—

Names of Offenders.	The Place of Abode.	What Balance, Weight, or Measure defective.	1st, 2nd, or 3rd Offence.	Sums amerced.	Occupation.	Remarks.
				s. *d.*		
A.B. - - -	— street - -	One balance - -	Second -	10 0	Grocer -	Small piece of tea lead on scale.
C.D. - - -	— street - -	Potato scale, one ounce; and coal scale, ¾ lb. against purchaser.	First -	10 0	Greengrocer.	
G.H. - - -	— street - -	Piece of lead in scale 2 oz. against purchaser.	First -	—	Chandler's shop.	We believe this person had no wish to cheat.

In witness whereof, we have hereunto subscribed our names, the day of one thousand eight hundred and .

Inspectors.

2504. Those in fact are the accounts of the inspection which are kept in your office?—Yes; but we have books in which we enter those particulars.

2505. Are those entries made upon the spot?—Yes.

2506. By the return for 1866, which has just been referred to, the fines amounted to 27*l.* 18*s.* 6*d.* and the costs amounted to 1*l.* 2*s.*; have you any later statement upon that?—In 1867 the fines were 30*l.* 2*s.* 6*d.* and the costs 11*s.* 6*d.* In 1868 the fines were 30*l.* 10*s.* and the costs 2*s.*

2507. How do those costs arise?—Persons refuse to pay, and then they are summoned to the police court. The fines are not collected by the jury. They are collected by an officer of the vestry, one of the rate collectors. If persons refuse to pay, they are summoned to the police court.

2508. I presume that those fines are applied to the benefit of the poor by the authority of the vestry?—They are simply paid into the poor rate account, just the same as if they were poor rate collected. With the permission of the Commission I will hand in a return of fines by inspectors of balances, weights, and measures, from the 25th of June 1868 to the 6th of May 1869 (*delivering in the same, containing* 168 *cases stated in detail*).

2509. How are the inspectors paid; do they receive a fixed remuneration?—No remuneration whatever.

2510. Are they paid their expenses?—No expenses and no remuneration.

2511. The 36th section of your local Act says that "It shall and may be lawful to and for the said "vestrymen and they are hereby required within one "calendar month next after such person or persons "is, are, or shall be convicted of such second and "every subsequent offence to cause his, her, or their "name or names, place or places of abode, and addi-"tion or additions together with the nature of his, "her, or their offence to be inserted in any news-"paper or newspapers printed and circulated in the "county of Middlesex, and the proprietor or pro-"prietors, printer or printers, or any other person or "persons concerned therein are hereby authorized to "print the same when he, she, or they, is, or are "required so to do by or by order of the said vestry-"men; and he, she, and they is and are hereby in-"demnified from any prosecution or prosecutions," is this done at all?—There has not been any official publication by order of the vestry since 1867; but those particulars have been read and published in the local newspapers by reporters taking notes of them, and the jury themselves have sent accounts to the newspapers.

2512. Have you any view on the general question of making the parish subject to the general law as distinguished from the local Act?—I do not know any special reason why we should be exempt from the general Act. At the same time I know that there is a great deal of feeling upon the subject in the vestry. The vestry think that a jury composed of their fellow tradesmen are much more likely to do justice than a paid officer would be.

2513. Probably the householders would like to be relieved from their liability to serve on the jury?—I think that the majority of them would.

2514. The business perhaps might be carried on in a more systematic way?—Probably so.

2515. Are you acquainted at all with the practice in Marylebone or Paddington, or any other parish which you have mentioned?—I think that the practice in Paddington and Marylebone is much the same as in ours, but I think that they both wish to retain the power of appointing a leet jury. If that were not so they have the power to give it up under the Metropolis Management Acts. It has been attempted once or twice in our parish, but the vestry have refused to give up the power to appoint.

2516. Is the inspection of gasmeters in your hands in any way?—Not at all.

2517. Is there any statement which you would desire to make to the Commission of your own ideas upon the subject of their inquiry?—No, I do not think I have anything particular to say. It is not a subject which comes immediately within the scope of my duties. Although the vestry appoint those inspectors they act almost independently of the control of the vestry. They exercise their functions by themselves, and the duty of stamping is done by the stamper.

2518. So that in fact you, as vestry clerk, have no very great practical acquaintance with the subject?—No very great practical acquaintance.

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2519. (*Lord Colchester.*) I think you did not state what was done with the false weights and measures which are seized, or to what purpose the proceeds are applied?—They are broken up and sometimes left; they are very seldom brought away.

2520. Are they not sold as old metal, or turned to any account?—There is not a sufficient number to make it worth while.

2521. I think you stated that tradesmen generally are in favour of this system of inspection?—I think that the majority of the vestry are in favour of it.

2522. Do not they feel that there is anything invidious in one tradesman pronouncing an opinion upon the honesty of others, perhaps in the same trade?—I do not think they do. The inspectors arrange themselves in groups, and each group chooses a foreman, and then they decide to serve not in the district in which they reside, but in another district.

2523. The parish would be unwilling probably to abandon that system in favour of any other?—I think so, because they now have the option of doing it under the Metropolis Management Acts.

2524. I think you stated that when they came to the name of a person who was not eligible they passed it over, and you mentioned women. What are the other causes which would make a person ineligible?—The collectors sit beside the vestrymen when they are taking the names from the rate book, and if they know a person to be over 60 years of age, or if they know him to be permanently ill, or permanently deaf, or anything of that sort, they would say, "He is not "eligible."

2525. Concerning the balances, have you had any means of judging whether any great advantage has arisen from the power of seizing balances?—I do not know of any particular advantage.

2526. That of course stops the trading entirely, or in a great measure, of the person whose balance is seized?—The more general custom is to give notice that the balance must be taken to be re-adjusted to the balance makers.

2527. Of course the answer of the tradesman would be that he did not know that there was any defect in the balance; and the difficulty of being able to prove what would not be apparent when it was brought before the magistrate, as the deficiency might arise from some temporary cause, such as moisture on the scale, might probably prevent their seizing the balances?—I think, generally speaking, it does not arise from such a cause as that. They generally allow persons to clean their scales.

2528. Is it not possible that the scale might have been dirtied for fraudulent purposes; for instance, allowing the slime of fish to remain in the pan, which would make the loss of the balance considerable?—I do not remember having had any opportunity of answering such a question, or that we have ever had any case of that description; usually, the notice is sufficient. They invariably take the inspectors' word that the balance is defective, and have it re-adjusted. Most tradesmen have an arrangement with the scale maker, and pay him so much a year for keeping the scales in order.

2529. I was speaking rather of cases where the balance is defective from fraud; would you notify to them in such a case to have it adjusted?—I do not think if it were the first offence they would go into the question of whether it was fraud or not. In all probability, the man would deny that it was from fraud, he would say that it was an accident. If it was evidently a fraud, they would inflict a penalty and perhaps break the balance up.

2530. Would they do that without taking the case before a magistrate?—Yes.

2531. Do they not summon a tradesman for having a false balance?—No, not in our parish, in some parishes they do; for instance, in Islington they do.

2532. I think you stated that it was only where they refuse to pay the fine that a prosecution takes place?—That is all.

2533. In ordinary cases is the fine imposed and paid without coming before a magistrate?—Yes; they generally prefer paying the fine rather than that the case should go before the magistrate.

2534. Do you think that it would be more for the public benefit, or that it would be more desirable that the matter should be known in the court, and terebyh be a greater terror to the offender?—I think that the fact of the name being published, either through the leet jury or through the vestry, though not officially, is sufficient to deter them generally.

2535. Do not the leet juries go about with a certain amount of parade which enables people to know that they are coming?—There are seldom more than six or eight go out, and very often they divide themselves into two parties, and each party takes one side of a street; and then if they find any case that is bad, or that requires them to come together, they come together and decide upon it.

2536. Having the beadle with them, the people in the street can see that the beadle is coming?—Yes; he is known sometimes. But there is the same objection to an inspector in uniform. The beadle does not attend the leet jury in uniform.

2537. An inspector can sometimes come down suddenly, without such public notice being attracted as where six men are engaged?—Yes, no doubt, and that perhaps is one objection to the present plan.

2538. (*Chairman.*) They do, in fact, exercise the powers of a bench of magistrates?—They do.

2539. The amount of their fines being subject to the limitation in the Act?—Yes. It would be a question whether, if the system is continued, it would not be advisable for the leet jury to have a paid officer with them to advise them. Some of our vestrymen thought that a very good suggestion, and the subject is now before a committee. I do not know whether we shall do anything in the matter. It would get rid of the objection against a paid inspector, and it would get rid of some of the objections against the leet jury.

2540. (*Lord Colchester.*) Is not the work generally better done by a man who is paid for it, than by a man who is not?—I think so.

2541. Is it not considered both an invidious and a burdensome office to serve on a leet jury?—It is frequently considered burdensome, but some men seem to like it, especially at first, and we have a very good attendance; but towards the end of the year they fall off, and get tired of it.

2542. I suppose it occasions a great amount of unpopularity without any reward, if they are obliged to fine their fellow parishioners?—Ours being a very large parish, they are scarcely known out of their own district, and as they always serve out of their own district, there is not much objection on that point.

2543. Do they inspect in the streets as well as in the shops, for instance, costermongers and men who sell fruit in the streets?—They do so sometimes, but the Act does not give them power to do it.

2544. Then those persons are very little inspected?—Very little.

2545. And they are generally a class amongst whom there is more fraud than with any other class?—Yes.

2546. Do you think that the people who buy fruit in the street in the parish of St. Pancras are unprotected?—I think they are.

2547. Has that subject ever been considered?—We have had two deputations from the ratepayers to the vestry upon the subject, and two or three times the vestry have been asked to rescind the provisions of the local Act, and hand the subject of inspection over to the county magistrates.

2548. As they have no power to inspect the weights of such persons selling articles in the street, could such persons resist inspection if they chose?—I think they could.

2549. If a man was selling fruit with a measure which was only half the proper measure, he might still refuse to be inspected, although he was manifestly cheating his customers?—I think so. The 36th clause of the Act says that they may "enter into all "and every shop, house, brewhouse, and warehouse, "inn or victualling house;" it does not say anything about inspection in the streets.

2550. And the county inspector never interferes with that?—No.

2551. (*Chairman.*) The Act of 1859, clause 3, enacts that "It shall be lawful for every inspector of "weights and measures, or other person or persons "duly appointed, to inspect all beams, scales, and "balances, and weights and measures in the possession of any person selling, offering, or exposing for "sale any goods on any open ground, or in any public "street, lane, thoroughfare, or other open place; and "if upon such inspection or examination any such "beam, scales, or balances, or weights or measures, "shall be found light or unjust, or otherwise contrary "to the provisions of this Act or the herein-before "recited Act, or if any fraud be wilfully committed "in the using thereof, the same shall be liable to be "seized and forfeited." Do you conceive that that Act does not apply to your parish?—I do not think it does. It is an Act to amend the Act of 1835, and the Act of 1835 does not apply to us. As I stated, I do not know that we have any authority to do it, but it is our custom to hand to the foreman of the leet jury a copy of the general Act.

2552. (*The Warden of the Standards.*) The Act of 1859 certainly applies to you, so far as regards the provision for the periodical comparison and re-verification of the standards, contained in sect. 1, does it not?—Yes, certainly. *Mr. T. E. Gibb.* 21 July 1869.

2553. By the same rule is not sect. 3 of the same Act applicable to your parish?—No, I think not. If you look at sect. 10, you will find a proviso that nothing in the Act shall extend to supersede, &c. the existing powers of any jury or ward inquest. I may state that this book contains the whole of the instructions that we give to the inspectors of weights and measures (*handing a small printed book to the Commission containing some observations on the importance of the duties of inspectors, and copies of the clauses in the local Act bearing upon them*). We give them each a copy of it.

2554. (*Lord Colchester.*) Would you suppose that the county inspectors have power to inspect anywhere unless that power is limited by privilege, or by the operation of a local Act?—Yes.

2555. If the parish have no power to inspect carts in the streets, would it not follow that the county inspector would have that power?—I think not; he would be going out of his district.

2556. You see that the authority is only limited to the power of the vestry. If the power of the vestry only extends to inspecting in certain cases, are not all the other cases left as they would be where the vestry have no authority whatever to act?—I should rather think they would be. I should think that they could legally inspect, but I have never heard of its being attempted.

The witness withdrew.

Captain William Charles Harris examined. *Capt. W. C. Harris.*

2557. (*Chairman.*) You are assistant commissioner of the metropolitan police?—Yes; I have held that appointment 13¼ years.

2558. You were formerly connected with Hampshire, were you not?—I was chief constable of Hampshire for a like period of 13¼ years.

2559. During the period that you were in Hampshire were the police employed as inspectors of weights and measures?—They were first appointed in 1844 as inspectors of weights and measures in the county of Hants.

2560. Before that time who had been the inspectors?—There were county inspectors of weights and measures appointed by the magistrates in quarter sessions.

2561. Subsequently to that time have any inspectors been so appointed by the magistrates?—The county constabulary are appointed now, and were appointed in 1844.

2562. What were the motives alleged at that time for the change, or what were the circumstances under which the change was made?—The subject was brought forward in quarter sessions by a magistrate, who thought that it would be better that the police should inspect weights and measures; that there would be less room for unfair dealing, and that the inspection altogether would be more satisfactory.

2563. That it would be more in the nature of the regular service of the police?—Yes.

2564. As far as you have observed, do you think that the change of system has been advantageous to the public?—I think it has been highly advantageous. As chief constable of the county, I was asked whether I would undertake the duties, and I said I should be most happy, that I thought it was desirable that the police should be made as useful as possible, and therefore I should be pleased to undertake the duties.

2565. I presume that the constabulary force in the counties have not so great a pressure of daily police duties, as is the case with the metropolitan police?—No, there is not anything like the number of charges in the counties that there are in London.

2566. Therefore it may be an easier thing to put additional duties upon police constables in the counties than it would be in the metropolis?—Yes. In Hampshire there are 14 divisions; the superintendents of divisions were appointed inspectors of weights and measures. The divisional stations are in the principal towns in Hampshire, and a reserve constable who was stationed at the head-quarters of the division, accompanied the superintendent in making his inspections. Horses and carts had been provided for the police by the magistrates in quarter sessions, and those horses and carts were available for conveying the weights and measures throughout the different districts.

2567. That expense, I presume, caused no additional charge in the expenditure of the police?—No, there was no additional expense incurred by the inspection.

2568. Did the police act under written instructions?—I cannot call to mind at this date whether any written instructions were given. I gave them all personal directions. I told them exactly what I wished done. For instance, I directed that they should never inspect two shops near each other in the same village; that having made their inspection at one shop, they should go to either a distant part of the village, or leave it altogether, so that it should never be known that an inspection was taking place.

2569. Was that with the view of preventing any preparation for the visit?—Yes.

2570. Not from any idea of invidious comparisons being instituted?—No. If unfair dealers have an opportunity they will put out of sight all the weights that are faulty or unjust, and produce only those fit for inspection.

2571. Is any special remuneration made to the officers of police?—There was none whatever in Hampshire in my time.

2572. From what grade of the police constables

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did you select the inspectors?—The superintendent of each division was appointed the inspector, and he received a warrant from the magistrates under which he acted.

2573. Were they selected on account of their mechanical knowledge or special acquaintance with weights and measures?—No, that was not considered. The superintendent was selected for his police qualifications as being the most intelligent man in the force. Of course, when a vacancy occurs, you would select the most intelligent man you could find to fill it. I do not myself see the slightest difficulty in employing the police in the inspection of weights and measures.

2574. Do you conceive that the same thing could be done throughout the country?—I do.

2575. Including the metropolis and large cities?—Yes, including London and all the large cities.

2576. Would it be necessary in that case to increase the number of the police force?—In London I should propose that inspectors should be specially appointed belonging to the police in the same way as the common lodging-house inspectors are appointed.

2577. The common lodging-house inspectors are not charged, are they, with the duties of attending to assaults in the streets?—No; but being in uniform they are occasionally called upon to act.

2578. But I presume they have not a regular beat in the same way as the others?—No, they have no regular duty assigned to them except the inspection of common lodging-houses, but still they would be available for any duty in the event of their services being required.

2579. In the event of putting the inspection of weights and measures in the metropolis under the police force, you would recommend the same division of duties in that respect?—Yes, I should recommend that a certain number should be appointed for this special duty, and that each inspector should have a constable attached to him as an assistant.

2580. I gather that your idea is that this inspection could hardly be done by the police who have the ordinary duties of police to discharge?—No; I think that it would be hardly fair to require after a man had performed 12 hours duty, to go out and inspect weights and measures; it would be requiring an impossibility. In the country, however, it is altogether different. A superintendent there in going round his division to look up his men, and see that they are properly performing their duties, has an opportunity of putting the standard weights into his cart and taking them with him and making his inspection as he goes through his division, so that there is no very great additional duty thrown upon him.

2581. How would it be with regard to small boroughs?—I do not myself think that it is desirable that small boroughs should have the appointment of their own inspectors. In fact, the inspectors would be appointed by the shopkeepers whose weights they would have to inspect. I think that all boroughs under a certain population ought to be united with counties for the purpose of the inspection of weights and measures.

2582. When you had the charge of those duties in Hampshire, do you know whether it was the practice of any of the inspectors to adjust the weights and measures?—No, they did not adjust, they simply examined and compared.

2583. And if they found them faulty what was done?—They were sent back to be readjusted.

2584. Have you any reason to think that any changes have been locally made in the standards in the nature of readjustment after they have been officially adjusted and approved at this office?—In 1844, when the duty was undertaken by the police, we had 15 sets of standards, the best we could procure in London; these were sent to the Exchequer, at that time in Whitehall Yard, and were compared, and an indenture was received with each set. One of those sets was most carefully kept in a glass case, and by this set the whole of the other county weights were examined, and if they required readjustment there was a proper man appointed to do it.

2585. That was done in the exercise of your own discretion, that is to say, you did not do it as being justified by any precise words in the Act of Parliament?—No, they were done once a year; but I have since referred to the Act 5 & 6 Will. 4. c. 63., and I see that we were wrong. I was not aware of that particular clause in the Act, s. 5, which makes it compulsory that they should be sent to the Standards office for reverification after readjustment, or else we need not have had an additional set; the idea was to save the expense of sending them to London every year, which is something considerable, with heavy weights.

2586. The duties connected with weights and measures may be divided into two parts, one that of inspection for discovering whether there is any flagrant violation of the law, and the other that of comparing, making accurate, and stamping; were those duties divided at all in the county of Hants?—No. Our inspectors in Hampshire examined and compared as well as inspected the weights, but they did not adjust. I think it would be only an additional expense if examiners were appointed as well as inspectors.

2587. In contemplation of the possible introduction of such a system in the metropolis, under whose authority are the metropolitan police?—Under the authority of the Commissioner, subject to the directions of the Secretary of State for the Home Department.

2588. Have the county magistrates any authority over them?—Not the slightest.

2589. Or any other local authorities?—No, no local authority can interfere with the metropolitan police.

2590. The police of the city of London, the county police, and the borough police are not under the same authority?—No; the city police are under the City Police Commissioners, subject to the authority of the Lord Mayor and Corporation, the county constabulary are under the authority of the chief constable of the county, who is responsible to the justices in quarter sessions, and the borough police are under the municipal town council.

2591. In the counties of Middlesex and Surrey generally the inspection is under the control of the county magistrates, is it not?—Yes.

2592. In the city of Westminster; is not the inspection under the control of the high constable?—I am not quite clear about that. I am not aware who appoints the inspectors of weights and measures in the city of Westminster.

2593. The inspection of gas meters, which is a later thing than the other is under a different authority, I think?—Yes, the inspection of gas meters is under the Metropolitan Board of Works.

2594. And that which is later still, the inspection of petroleum, is under the same body, is it not?—Yes, I believe so.

2595. Do you see any advantage or disadvantage in placing the whole of them under one authority?—No, I do not see the slightest disadvantage. I think that the inspectors of weights and measures might be appointed inspectors of gas meters and might have the duties connected with the inspection of petroleum.

2596. You conceive that a branch of the Metropolitan Police specially appointed might be employed for those purposes?—Yes, I think so.

2597. You are able, perhaps, to give an opinion of the number of officers who would be required?—Yes, I have a return here of the number of shops selling by weight and measure; I have divided them into districts, and I think that 10 inspectors of weights and measures would be requisite for London, giving their whole time to the performance of this duty. The return is as follows:—

(*The witness delivered in the following return.*)

METROPOLITAN POLICE.

ABSTRACT RETURN showing the Number of Shopkeepers within the Metropolitan Police District who sell Retail by Weight or Measure.

Police Division.	Number.
A. or Whitehall	45
B. or Westminster	2,102
C. or St. James's	2,097
D. or Marylebone	1,685
E. or Holborn	1,650
F. or Covent Garden	1,409
G. or Finsbury	2,576
H. or Whitechapel	2,634
K. or Stepney	7,126
L. or Lambeth	1,769
M. or Southwark	2,731
N. or Islington	4,075
P. or Camberwell	3,617
R. or Greenwich	3,872
S. or Hampstead	2,247
T. or Kensington	3,286
V. or Wandsworth	2,274
W. or Clapham	2,910
X. or Paddington	2,497
Y. or Highgate	3,517
Total	54,119

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Superintendent.

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2598. Do you think that 10 inspectors specially appointed would be able to grapple with the duty?—Yes. I have brought with me a further return of the police divisions, in which I have divided them into 10 districts of inspection. The Commission will remember that there are a large number of shops in which they do not sell by weight or measure, for instance, booksellers, printsellers, hatters, tailors, &c.

(*The witness delivered in the following paper.*)

DISTRICTS.

	1st.				2nd.		
K	Stepney		7,126	G	Finsbury	2,576	
				H	Whitechapel	2,634	
							5,210
	3rd.				4th.		
N	Islington		4,075	Y	Highgate	3,517	
				S	Hampstead	2,247	
							5,764
	5th				6th.		
E	Holborn	1,650		X	Paddington	2,497	
F	Covent Garden	1,409		T	Kensington	3,286	
D	Marylebone	1,685					
			4,744				5,783
	7th.				8th.		
A	Whitehall	45		V	Wandsworth	2,274	
B	Westminster	2,102		W	Clapham	2,910	
C	St. James's	2,097					
			4,244				5,184
	9th.				10th.		
L	Lambeth	1,769		M	Southwark	2,731	
P	Camberwell	3,617		R	Greenwich	3,872	
			5,386				6,603

2599. Supposing such a change were made, would you introduce it gradually by weeding out some of the old inspectors?—No, the change must be a total change. We could not bring the old inspectors into the police, and, unless the police took the whole control of weights and measures, it would be very unsatisfactory; there would be a conflicting authority.

2600. It is scarcely to be doubted that uniformity of action throughout the kingdom is desirable with respect to the mode of inspection?—I should say most desirable. I do not myself see the slightest difficulty in effecting it.

2601. It would be desirable probably that one department of the State, such as the Board of Trade, should issue detailed instructions in these matters?—Yes, and forward them to the constabulary through the Home Office. The Home Office is the head to which we all particularly look. The whole of the county constabulary furnish returns to the Home Office.

2602. The Board of Trade being a Committee without power in this respect?—I do not say that they have no power; but it is usual for all communications to the constabulary, from other public departments, for instance, from the Foreign Office, to be made through the Home Office; if the Foreign Office wish any inquiry made, they do not send direct to the constabulary but to the Home Office, and the Home Office instruct us.

2603. (*The Warden of the Standards.*) Could not the existing inspectors in the metropolitan districts be continued to be employed for the distinct duties of comparison and verification, whilst the duties of inspection were transferred to the police?—Yes, certainly. I see no difficulty whatever. It would be a separate appointment; and if it was considered desirable to make two appointments, then I should say, have the old inspectors to examine and compare.

2604. Are you aware that in many districts of inspection in this country that distinction is now in practice?—No, I was not aware of it.

2605. Do you know that it is generally so in France?—No, I do not.

2606. (*Chairman.*) In your superintendence of the county of Hants, were periodical returns furnished to you by the inspectors?—Fortnightly returns were furnished, and I have here an old return from one division of the county, of the inspection of weights and measures for the fortnight ending December 14, 1845, which shows in separate columns—

1. Date.
2. Name and address of the persons visited.
3. Occupation.
4. Time occupied by superintendent in his visits.
5. Time occupied by the assistant in his visits.
6. Number of miles travelled.
7. Credits to police fund, under the separate heads of,—
   - Superintendent's time.
   - Assistant's time.
   - Travelling allowance.
   - Total.
8. Whether convicted or not.
9. Amount of penalties, subdivided into—
   - Moiety paid to superannuation fund;
   - Moiety paid to county.
10. Amount received for stamping weights.
11. Total of the two last sums paid to county.
12. Whether penalty paid at time of hearing.

2607. I do not doubt that you attach importance to the careful preparation of a form of that kind?—Yes; and I have here also a return, which was sent in to head-quarters, of the weights and measures stamped in the same district between the 17th November and the 14th December 1845; it also shows the form of the monthly return from each district. It gives in separate columns,—

1. Date.
2. Names of persons whose weights and measures have been stamped.
3. Their address.
4. Number of each denomination of brass weights, from $\frac{1}{2}$ cwt. to $\frac{1}{4}$ oz.
5. Number of each denomination of iron weights, from $\frac{1}{2}$ cwt. to $\frac{1}{4}$ oz.
6. Number of each denomination of wooden measures, from a bushel to a half-pint, and also the yard.

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7. Number of each denomination of metal measures from the five gallon down to half a quartern.
8. Amount paid for stamping.

I have also another return of the annual amount received and credited to the county, for stamping and for penalties in inspecting, from the time when we first undertook the duties until I left the county. The amount received for stamping was carried to the credit of the county rate, and that for inspecting to the credit of the police rate. The return is as follows:

HANTS CONSTABULARY.

RETURN showing the Amount received and carried to the Credit of the County Rate, for comparing and stamping Weights and Measures; also the amount credited to the Police Rate for inspecting the same; from the Year 1843–44 to the Year 1855–56 inclusive.

Year.	Received for comparing and stamping and carried to Credit of County Rate.	Received for inspecting, and carried to Credit of Police Rate.	Remarks.
	£ s. d.	£ s. d.	
1843–44	127 13 5	—	Police commenced inspecting in 1844.
1844–45	44 0 6	377 3 6	
1845–46	29 12 3	435 4 3	
1846–47	29 11 8	404 12 6	
1847–48	23 15 10	490 4 6	
1848–49	27 11 9	429 6 9	
1849–50	25 8 10	486 13 6	
1850–51	30 15 5	496 6 9	
1851–52	29 19 4	550 14 6	
1852–53	29 0 2	504 7 0	
1853–54	29 0 7	500 15 9	
1854–55	33 10 11	479 6 6	
1855–56	24 8 11	497 13 3	

2608. How were those amounts divided; for instance, 29*l.* to the county and 500*l.* 15*s.* to the police fund, in 1853–4?—One is the amount received from individuals for stamping, and carried to the county rate, the other is the amount received from the county and carried to the credit of the police rate. The latter payment is merely paying from one hand into the other.

2609. Have you ever found any difficulties in the construction of the law?—No, I cannot say that we have. If I recollect rightly, (it is some years since I had this matter prominently before me), the only difficulty was about the seizure of balances. If a balance was found incorrect, we had no power to seize it, and frequently its inaccuracy was disputed when the matter came to be adjudicated upon in petty sessions; I always thought it would have been desirable to have had power to seize the balances as well as the weights. Of course if you seized the weights, and you placed them before the magistrates, they could judge for themselves whether they were correct or not; but the balances not being produced there was frequently a dispute as to the evidence, and a man would say, "my balances were correct."

2610. (*Lord Colchester.*) Could you always proev before a magistrate the incorrect state of a balance, even if you had the power of seizing it; might it not arise from a temporary cause, such as moisture in the pan?—I do not think that a seizure would be made unless it was something very glaring.

2611. Supposing there was undoubted fraud, is not the fraud often of a temporary character, so that a few days afterwards all trace of it would have disappeared?—Of course in the case of persons selling salt provisions, that would affect the balances.

2612. Those are the balances which are most constantly out of order, are they not?—Yes, I should think they were; but still there was always a considerable allowance made in a case of that kind.

2613. You would stop the trading of a man if you went into his shop on a Saturday night when he had a great many small customers, and his balance was found defective and was seized?—So you would if you seized his weights, unless he had another set.

2614. Is it not supposed by shopkeepers to be easier to go and borrow weights, and to go on with their trade, than to get balances?—That may be. I have not heard any opinion expressed upon that point; but generally speaking, a shopkeeper has two or three sets of balances.

2615. (*Chairman.*) Were you ever troubled with questions with respect to an adjustable ball on the balance?—No, I do not recollect that I was.

2616. I presume that in the county which was under your care, there was no superior power to yourself. You had the whole matter in your own hands?—Entirely. Of course I was responsible to the magistrates in quarter sessions only.

2617. Should you think it desirable that itinerant visitors should be appointed under a public department, say under the Board of Trade, to go round to the different districts of the kingdom, and see that things were going on properly?—I do not see any objection to it, but I consider it unnecessary in counties. We used to be very particular in Hampshire, so that I think it quite unnecessary there. I should likewise say that it would be unnecessary in London, if the inspection was in the hands of the metropolitan police.

2618. As to the metropolitan district, if the inspection were placed in the hands of the metropolitan police, I suppose that you would think it right that all official communications should be made to the chief commissioner of police?—Yes.

2619. Might not it be desirable in cases of neglect of duty that there should be a power of dismissing an inspector?—The power of dismissal would be in the hands of the commissioner.

2620. Would you prefer that it should be with him or with the Board of Trade?—It would never do to delegate the power of dismissal to any one but the commissioner. Of course the Board of Trade, if they had any complaint or charge to make against an officer, would make it to the commissioner, and it would be investigated; and if the man had misconducted himself, so as to make it desirable that he should be dismissed, he would be dismissed at once, or removed from this duty to his original duties.

2621. In your experience should you think it better that the police officers employed in this way should be paid fixed salaries, or that they should derive any part of their income from fees?—Not from fees. I think they ought to be paid by a fixed salary. In London the inspection of weights and measures would be an exclusive duty; but in the counties I think a small additional sum ought to be given beyond their police pay.

2622. Because there is really a certain quantity of labour added to their usual employment?—Yes; there is a certain quantity of labour, and also of responsibility.

2623. Supposing then that a portion of the metropolitan police, or an addition to the metropolitan police, were so employed, should those expenses be defrayed from the local funds in your opinion?—I think that all expenses ought to fall upon the county rate. The salary of the inspector and of his assistant, and the keeping of a horse and cart for conveying the weights, should be a charge upon the county rate; the fees for stamping should be carried to the credit of the county rate. That might be done through opening an account with the receiver for the metropolitan police district.

2624. (*The Warden of the Standards.*) There would, in your opinion, be no practical difficulty in arranging the matter?—No practical difficulty whatever.

2625. (*Chairman.*) I presume that those expenses would come to be paid in the same manner as the expenses of the police for other purposes?—Yes, the

expenses falling on the county rate in the place of the police rate.

2626. Has the inspection of gas meters ever attracted your notice?—No; I do not know anything respecting the inspection of gas meters.

2627. So that you would not wish to give an opinion as to whether it should be made part of the duties of the same persons?—I do not see any difficulty in it. Our inspectors are generally intelligent men, and of course with a little instruction, they would be enabled to perform the duties as well as the present inspectors of gas meters.

2628. And with regard to petroleum, and the adulteration of food, in the same way?—Yes, in the same way, I should say.

2629. Have you anything else which you would desire to state to the Commission upon the subject of their inquiry?—No; I do not think I recollect anything further.

2630. (*Lord Colchester.*) I understand that you are strongly in favour of placing the whole inspection of the country in the hands of the police?—Yes.

2631. And that you would make it a separate department of the police, in London at least?—In London only; not in the country.

2632. You think that they should be persons wearing the police uniform, and under the control of the police authorities, but except in special cases with no general police duty?—Precisely so, in the metropolis.

2633. Should you think that there should be any kind of test examination as to their knowledge of weights and measures?—No; I consider it so simple that I do not think any test necessary. Very little explanation is required.

2634. You would probably select those who were best fitted from their general intelligence?—Yes; all our inspectors are selected on account of their general intelligence and character.

2635. And in London you would give them a certain extra payment?—They might receive a small additional salary to that which they would receive as inspectors in our service.

2636. Do you not think that it is an office which is not likely to be well discharged except by persons properly remunerated, because it would be a troublesome and invidious office?—Not more so than other police duties.

2637. But you are strongly against payment by fees or by any share in the proceeds?—Yes, certainly; the moieties of penalties I think might be carried to the credit of the superannuation fund, but certainly not paid to the informer.

2638. From your experience of the police do you think that they would be likely to act unjustly if they had that inducement, in order to multiply convictions?—No, I do not think they would attempt to multiply convictions; it is quite immaterial whether the moiety is paid to the superannuation fund, because at the present moment our superannuation fund is exhausted, and the constables are superannuated out of the police rate; therefore whether the moiety of the convictions is carried to the credit of the county rate or to the superannuation fund is immaterial.

2639. We have had some witnesses who were under the impression that an inspector paid by fees not only would abuse his power, but there would be no check upon him; that he might have anybody fined, and there would practically be no control over him?—I do not see how that is possible.

2640. You do not think there is any fear on the other hand that if they did not derive any benefit from conviction, therefore they would be slack?—No. I would not allow them to derive any benefit from convictions. I think it very undesirable; payments made to the superannuation fund would be no benefit to any individual officer.

2641. Do you see any administrative difficulties in the relation in which the police necessarily stand to the Home Office, and in the relation which the inspection has always borne to the Board of Trade?—No, I see no difficulty.

2642. The duties of inspection of weights and measures being made subject to the control of the Board of Trade, you do not see any administrative difficulties in transferring them to a body which must necessarily be under the Home Office?—No, I do not see any difficulty at all.

2643. Do you think that it might work quite smoothly, the inspectors being under the police and reporting to the Home Office, and at the same time the Board of Trade having the general direction of the manner in which the work is to be carried out?—I see no difficulty in this. If the Board of Trade were to forward any regulations or instructions through the Home Office I see no difficulty in carrying them out.

2644. Would the inspectors belonging to the police have the power which the inspectors have now, of summoning any one before the magistrates, and the magistrates deciding on the case?—Yes, just in the same way as the inspectors of common lodging-houses summon parties who infringe the law.

2645. The only additional power which you would give would be the power of seizing defective balances on the spot?—Yes.

2646. That power is possessed, is it not, both in Ireland and under some Local Acts in England?—I am not acquainted with the practice in Ireland; in some parishes under local Acts they have that power.

2647. But you find some deficiency in the state of the law in that respect, do you not?—Yes. I recollect many years ago I considered it would be desirable to have the power of seizing balances.

2648. (*Chairman.*) You have stated rather strongly, have you not, your opinion that no part of the fines ought to go to the inspecting officer?—No; certainly none should go to the informer.

2649. Will you state to the Commission your reasons?—It gives him, in a measure, an interest in the convictions, and therefore, I think it objectionable. For instance, the original inspectors of weights and measures in counties had an interest in obtaining a conviction because they received a moiety of the penalty.

2650. (*Lord Colchester.*) You stated that you had no apprehension that the police would multiply convictions?—I have no apprehensions on that account.

2651. There is no doubt that convictions have been more numerous where the inspectors have had a moiety of the penalty, but you do not think that it has arisen from slackness on the part of those who do not have the moiety?—No; at least, I never could discover any slackness in the inspection of weights and measures by the constabulary.

2652. I believe it to be the fact that in the metropolis, wherever the inspector was paid by fees the convictions were more numerous, but in such a case the question might arise whether that was not the result of his being the only inspector who did his duty?—I have seldom had an opportunity of seeing anything connected with the inspection of weights and measures in London; the only thing I have seen is what is termed an annoyance jury going down one side of the street, and up the other, this I consider a perfect farce; perhaps 30 or 40 men, with a large crowd of people following them, going into every alternate shop. Of course, if there were any unjust weights, they would all be put out of sight, and properly adjusted weights would be produced.

2653. In what parishes have you observed such a proceeding?—I cannot call to mind, but it was a street off the Strand.

2654. They are not very common now, are they?—No, I do not suppose they are; they are a great farce.

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2655. Have they not gone out of late years?—I cannot say; I merely mention what I witnessed some years since.

2656. Are any of the metropolitan police now employed in the inspection of weights and measures?—No; none.

The witness withdrew.

Mr. R. Mellor.

Mr. Ralph Mellor further examined.

2657. (*Chairman.*) For the verification of measures of capacity for dry goods, do you use a gauge of any kind to test their cubic measurement?—I do; but not for verification. When we go into the markets and examine the measures for dry goods, and, in fact, under any circumstances, I use for this purpose a particular rule with which I was furnished from this department, one end of it for the diameter and the other for the depth, and the two numbers added together show the result.

2658. The object with which I proposed this rule, many years ago, was that it might be used for taking a hasty measure in exposed places, with a view of getting *primâ facie* evidence?—That is what we use it for.

2659. I think it is very likely that when I furnished this to you, I did not give you a proper explanation of it, that is to say, to this extent that one of those divisions constitutes a unit in the total sum, and implies an error of $\frac{1}{64}$th part?—That instruction was not communicated to me. This is only used as an approximate test, and if it becomes necessary to seize a measure, as we soon discover from this rule, we then test it, of course, carefully and accurately at the office before taking any proceedings.

2660. You would prefer that to the use of anything of the nature of an ordinary sliding rule?—Yes; I think so. This appears to me to answer every purpose for which it is intended. It has been extensively used by us, and with considerable advantage. It is more than 20 years ago, I think, since I was furnished with it.

2661. In your district are any galvanized iron weights used?—I have been making further inquiries since I was last before the Commission, and I find that they are going out of use. There are much fewer in use now than there formerly were. They were introduced by some of the ironmongers and dealers in weights some 10 years ago, perhaps, and I thought that they were likely to become extensively used; but, judging from the number that are brought before me to be restamped and readjusted, I should say that they appear to be going entirely out of use, as they are not found to answer the purpose for which they were originally intended, and that was, to be used by butter dealers and bacon dealers and so forth, to preserve them from the action of salts and acids.

2662. Independently of that, does there seem to be any positive objection to them?—None. I have none.

2663. Perhaps you are aware that it is the opinion amongst a great many practical men that the galvanic deposit of the zinc makes the iron brittle?—We have an idea that it makes it softer, because the metal, I believe, has to be made red hot before the zinc is applied, and that has a tendency to soften the metal. At all events in drilling the weights, as we have to do in adjusting them, we find that to be the case, that it is softer metal than other weights are usually made of.

2664. Is it soft enough to take a stamp?—No.

2665. Many cast-iron weights which come before you are in their rough state, are they not?—Yes; they are. I have brought samples with me. Something was said about a bar or brick weight, and I have brought a sample of that and also of our ordinary iron weight of 4 lbs. downwards (*producing them*).

2666. Are any of them smooth or covered in any way except by a zinc deposit?—I have not seen any except occasionally some $\frac{1}{2}$ cwts. may have been painted with oil paint and dried. The object of that is, when they are used by coal dealers and merchants for outside purposes, where they are exposed to the weather, to serve as a protection to the iron, preventing them rusting.

2667. Are they not japanned sometimes?—There are very few of those japanned weights sent to me.

2668. In the course of your last examination you exhibited to the Commission a remarkable instance of a false weight, have you any specimen of false balances, the construction of which has struck you?—I have frequently had false balances to explain before the magistrates. You are aware that the Act of Parliament does not give the inspector power to seize false balances, except in market places and markets by our local Act, and in open places according to the recent Act of Parliament.

2669. With regard to false balances, what occurs to you as the ordinary way in which they are made fraudulent?—As for ordinary balances, they are used fraudulently in the markets, market places, and by hawkers by what is generally called here in London "marrying the beam." If I were to set up the scales which I have brought with me perhaps I could illustrate it somewhat better than by any description that I may be able to give. (*The witness here set up a balance, and described the modes by which fraud was committed.*) I may say shortly that it is sometimes done by throwing the chains or string of the weight end of the beam over the swan neck of it, which shortens the lever, thereby giving increased power to the goods end, by which they may cheat to a very considerable extent. It has frequently happened that I have been passing and stood quietly by, whilst they have done this, and then when the customer is going away I have said, "You had better bring those cherries back" and just have them weighed over again," and he finds perhaps that the weight is something under $\frac{1}{2}$ lb., instead of 1 lb.

2670. (*Lord Colchester.*) You do not find that sort of thing done in shops, do you?—No. I have got this balance made for the purpose of exhibiting, when I take people before the magistrates, the ways in which fraud is committed, because they are not all mechanical and scientific men, as this Commission are. They are not able to understand from what I say how the fraud has arisen, and I have therefore got this made to show it to them. You will observe that there are screws which regulate the mode in which the tip is given to the beam, and the centre of gravity is altered (*describing the same, and exhibiting the alteration of the screws, thus shortening the weight end of the beam*). The result is that in 14 lbs. weight of goods, there would be 14 ozs. short. That is to say, you might take flour or potatoes from the goods end, and there would thus be 14 ozs. short out of 14 lbs. The moment the scale begins to show that it is going back they take away this quantity, and empty it into the bag, or whatever it may be, and cheat to the amount of 14 ozs. The same thing is done by similarly elongating the beam at the goods end. I have here also a shot balance ball (*producing the same*). This unscrews, and there is shot in it. You will also observe on the balance the scale pan, which somebody said ought to be fast, but that is not so. We find no ill effects from having it moveable, because it is an integral part of the scale itself. Without it you could not weigh. I have here a specimen of a false measure (*producing the same*). The man who used this first came and got me to stamp it, quite accurate as it then was. He next takes it to a tin-plate worker, and gets false sides and bottom put in, making it 20 per cent. too small, so that he makes me assist him in his roguery by ex-

hibiting my stamp and saying, "You cannot doubt "this; here is the inspector's stamp."

2671. (*The Warden of the Standards.*) Are you aware that the practice in France is to stamp measures of capacity at the bottom, to avoid fraud of that kind?—I am, in consequence of learning it when I was here last, and a very good plan it is; but you see in the case of this measure, which I have produced, that would not have availed if stamped outside, because the fraudulent metal is put inside. I have here a sample of my branding (*producing the same*), by which you will observe that I stamp or brand the wooden measures on two sides opposite to each other, in the inside of the measure, so that if the bottom is removed, it shows it at once, because it is a brand partly on the bottom and partly on the side.

2672. (*Chairman.*) As these specimens are before us, have you any further remark to make upon them?—I have nothing further to remark about scales or measures beyond this, that the way in which they make those scales to tip, as you perhaps very properly term it, is by taking the scale beam and laying it on anvil, and giving it a few blows at the under side, which causes the lower edge of the beam to expand, and throws it up.

2673. (*Lord Colchester.*) Could those errors be more easily detected and proved, if you had the power of at once seizing those balances as you found them?—No, I do not think it would forward us at all in that respect.

2674. They might say that you had done it yourself?—They might say so, and that would be a very serious matter. It raises a difficulty as to the propriety of seizing scales, which it is not easy to get over. Supposing we were to seize a scale beam in a shop, the inspector is prepared to prove by his assistants, who would be his witnesses, that that scale is in precisely the same state (and I could add my testimony when it was brought into the office) as it was when it was seized; but an unprincipled man (and of course it is only such that use those things) would declare, and if necessary swear, that it was we who had altered it; so that I think either way we labour under a difficulty. In market places and open places, as you are aware, the general Act gives us power to seize scales or weighing machines that are used there, and our local Act, that I referred to before, gives us the power in the markets to do so, and we do seize them. They are generally hawkers who use them in open places, and in other cases they are fruit sellers, and potato dealers, greengrocers, and foreign fruit dealers, and so forth, who use them in our large market, which is the largest covered market that I know, although possibly there may be one in London as large.

2675. (*The Warden of the Standards.*) Do you find that seizing balances in those places facilitates convictions, and that you have no countervailing disadvantages?—There is this to be said about it. Perhaps there may be a very kind-hearted gentleman on the bench, who is disposed to take a lenient view of the matter in his punishment. When we begin with seizing the scales, if the fine is only a small one, the punishment is considerably more than that in the value of the scales themselves.

2676. (*Chairman.*) Do you think it possible to issue authoritative regulations as affecting balances which would prevent the commission of frauds of this kind?—It might assist; but you see what I have done in Manchester. At the back of this receipt which I hold in my hand, and which receipt is given to every person coming to my office and paying a halfpenny to have a weight stamped, is a sort of an epitome of the Acts of Parliament bearing upon weights and measures in the plainest possible language. I call it "Directions to shopkeepers and "others;" but I do not believe that in 999 cases out of 1,000, one word of it is read, and yet this is kept before them, and has been for above 20 years. I take every precaution to enable all parties to know what the law is, and thereby to escape conviction by complying with it. If they do not choose to do it, then, I say, I have done my duty in the matter, and and if you do not choose to do yours, you have no reason to complain of my summoning you before the magistrates for a breach of the law. I would beg leave to hand this into the Commission.

Mr. R. Mellor.
21 July 1869.

"MANCHESTER WEIGHTS AND MEASURES OFFICE.

Lower King Street, 186 .

*Received*_____*from*____

for Examining, Comparing, Stamping, and Adjusting Weights and Measures.

Ralph Mellor, Chief Inspector.

"Directions to Shopkeepers and others.

"All scales, weighing machines, &c., are required to be truly balanced, no draft whatever being allowed; nor will anything *loose*, or not permanently fastened, be permitted to be attached to scales, &c., to make them balance.

"Shopkeepers and others are recommended to have their scales and balances examined occasionally by a competent scale maker, as by constant wear they become sluggish, and otherwise get out of order. They are also strongly recommended to purchase none but *new* scales, weights, or measures, and to be particular that the weights and measures are *properly stamped.*

"It is the duty of all persons using, *or having in their possession*, weighing machines, scales, weights, and measures, to keep them accurate. If the inspector finds them wrong, the parties are liable to a penalty.

"All weights and measures brought to this office must be removed, and the charges thereon paid within three calendar months, or they will be forfeited without further notice.

"*Caution to Dealers in Scales, Weights, and Measures.*—'By 22 and 23 Vict. Cap. 56, Sec. 2, a penalty of 10*l.* attaches to any person for making and selling false beams and scales, or weights and measures.'

"*Caution to Bakers.*—By the 'Bread Act,' 6th and 7th Wm. the IV., Cap. 37, bakers and sellers of bread from any cart or other carriage, not being provided with correct scales and weights, or *at any time* refusing to weigh any bread purchased of them, are liable to a penalty of 5*l.*

"The office in Lower King Street is open daily for the purpose of adjusting and stamping weights and measures, where every information on the subject may be obtained.

"Weights and measures authorized to be used, being copies of the Imperial Standard Weights and Measures. *All other* weights and measures *are illegal.*

Avoirdupois Weights.	Troy Weights.		Measures of Capacity.
	Binary Scale under the Old Act.	Decimal Scale, in pursuance of 16 Vict. Cap. 29.	
56 lbs.	1 lb.	500 oz.	·5 oz.	Bushel.
28 lbs.	6 oz.	400 oz.	·4 oz.	½ bush., or 4 galls.
14 lbs.	3 oz.	300 oz.	·3 oz.	Peck, or 2 galls.
7 lbs.	2 oz.	200 oz.	·2 oz.	Gallon, or ¼ peck
4 lbs.	1 oz.	100 oz.	·1 oz.	½ gall., or ¼ peck
2 lbs.	10 dwts.	50 oz.	·05 oz.	Quart, or ⅛ peck.
1 lb.	5 dwts.	40 oz.	·04 oz.	Pint.
8 oz.	3 dwts.	30 oz.	·03 oz.	Half-pint.
4 oz.	2 dwts.	20 oz.	·02 oz.	Gill.
2 oz.	1 dwt.	10 oz.	·01 oz.	Half-gill.
1 oz.	12 grains.	5 oz.	·005 oz.	
8 drams.	6 grains.	4 oz.	·004 oz.	Measure of length.
4 drams.	3 grains.	3 oz.	·003 oz.	
2 drams.	2 grains.	2 oz.	·002 oz.	Yard.
1 dram.	1 grain.	1 oz.	·001 oz.	
½ dram.				

"Ra. Mellor, Chief Inspector of Weights and Measures."

2677. The regulations in France are very strict as to balances, weights, and measures, and everything which comes before the inspectors; do you think it desirable that there should be the same strictness in this country?—I think it would be very desirable that from this or some other public office there should emanate general instructions to inspectors. But even if you do that, they would be disregarded, like those which I issue to the shopkeepers; unless you have someone to enforce the instructions and go about and see that they are obeyed, they would never be carried out.

2678. The question has been agitated of intro-

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ducing the metric system into this country concurrently with the existing imperial system; should you think it necessary that stringent measures should be adopted for preserving a marked difference of appearance between the two kinds of weights?—I think it would be very desirable. As long as you allow two sorts of measures or weights, there should be such a distinction that there could be no doubt about which is being used. It was on this very ground that I tried the case in Manchester about the intermediate weights. I found that the 3 lb. weight was so like a 4 lb. when it was the wrong side up, that ignorant and poor working people were repeatedly cheated by the use of the 3 lb. weight; and I complained to the magistrates of it. That was one of the evils of an intermediate system of weights and measures being allowed to be used, and therefore I stopped it at once; and on a friendly trial of the case, as described when I was examined here last, it was decided that I was right, that I was not obliged to stamp a weight or measure which was attempted to be forced upon me, unless it corresponded with the standard. The five gallon and the three gallon measures I rejected and would not stamp them because I had no copy of those denominations, although fees for stamping them are contained in the schedule of the Act, and I always have refused to stamp them.

2679. In the French regulations the very metals are defined of which the weights and measures are to be constructed; would you approve of that being adopted in this country?—As regards that, if you commenced the metric system here, and began by having them of a particular shape and a particular metal, you would have no difficulty in carrying it out; but if you had to alter the avoirdupois weights that we now have in use, it would be a most serious matter.

2680. Do you think it desirable in any case that inspectors should be allowed to adjust weights?—I do. That is done by me, and with very great advantage to the public. There are many reasons why I think it would be advantageous to the shopkeepers. For instance, if they had to go to an ironmonger or a scale maker's to have their weights adjusted, these would have to come to me to be stamped; and very often the weights would be adjusted so imperfectly, either made too light or too heavy, that they would be rejected by me. People would thus be put to additional trouble. Again, the consequent advantage to them is very considerable where they can have the whole thing done at one place, under one head, as it were, who is made responsible for the proper adjustment of those weights. If they are improperly adjusted or incorrectly done, I am responsible.

2681. How is the expense managed?—The corporation pay all the expenses, and provide me with a large office upstairs, and the ground floor for the workshop. I have iron plates screwed round the walls for the purpose of holding the scales, and my beams are fixed to those iron plates, but the bench underneath, which is four inches thick, has no connexion with the wall at all, or with the iron plates, so that any knocking or hammering and vibration from the benches does not affect the scale-beam. I may say that all those contrivances have been my own getting up entirely from beginning to end.

2682. If I understand rightly, the adjustment of the weights is in reality done at the expense of the borough?—No, of the shopkeeper.

2683. How does he pay?—I have handed in a list of the fees, which will be found in my former evidence. Those fees for adjustment, I may state, are fees recommended by myself and approved by the magistrates. Of course the Act of Parliament has nothing to do with those fees for adjusting or for marking the contents of new weights and measures, which the Act requires to be done.

2684. Are the fees accounted for to the borough?—To the city treasurer. You had before you on the last occasion a receipt from the city treasurer. I pay my fees over every week. The following form is cut out of a book, and goes with the different shopkeepers' weights, and I have arranged an index in alphabetical order of every name, in order that I may find them more readily in looking through my books:—

3197 | 3197 MANCHESTER INSPECTORS OF WEIGHTS AND MEASURES' OFFICE.

	Charge. s.	d.
Date received ___ Date returned ___		
Name ___		
Trade ___		
Address ___		
Weights, &c., Stamped ___		
Ditto Adjusted ___		
Ditto Marked ___		
Ditto previously stamped ___		
A 61 B 61 A 62 B 62 A 63 B 63		
A 64 B 64 A 65 B 65		
A 66 B 66 A 67		
B 67 A 68 B 68		

2685. What is meant by "A 61"?—That is the letter number of the stamp. The stamp I am now using is "B 69." I change my stamp twice a year; for the first half-year, up to the 30th of June, it would be "A 69," and on the first of July it would commence "B 69." The advantage of that is, if one of the inspectors, or myself, is a couple of miles away from the office, and we get hold of a weight which we find to be bad on trying it, they might say "You only stamped it about six weeks ago;" but this stamp shows the half-year in which it is really done, and then on getting back to the office, the record in the book shows the particular date upon which it was stamped.

2686. Do any persons except yourself make this adjustment?—My workmen do that adjustment, not myself. I simply direct and order all these things to be done. I have a general supervision of the whole of the duties both of adjusting and stamping, and the outdoor inspecting.

2687. You are the responsible person who has the instruction of those subordinates?—Yes, I am.

2688. It would be very imprudent, would it not, that the power of doing that should be given, except under the instructions of a superior officer?—It would be improper, and I think it would not be able to be carried out. We tried the system of independent inspection and examination. When I was first appointed I had a colleague who was independent of me, and did all the outdoor inspection, and I did the indoor alone. Three or four years afterwards the other inspector left, and I drew up a report which I presented to the magistrates, recommending that they should appoint two outdoor inspectors instead of one, and that both the indoor and the outdoor departments should be put under the control of one individual. They agreed to do that, and it has been carried on very satisfactorily ever since. I am held by the Corporation responsible for everything done, both indoor and outdoor.

2689. Is there any system of examination of persons to be appointed as to their qualifications?—There has been none beyond that the magistrates, when they had the power of appointing persons, had advertisements put in the newspapers. Applications were made in great numbers, and the magistrates themselves made the selection. I was not referred to on the first occasion, which was about 20 years ago, but on the last occasion, upon the death of the other inspector, I recommended a man who has been with us now for 25 years. He had a great deal of experience both in the indoor department and as assistant to the late outdoor inspector, and they appointed him, and a very excellent inspector he is.

2690. Will you take one of the weights that you have here, and tell us how it is adjusted?—This is a

14 lb. brick or bar weight. The lead is poured in at the bottom, into a cavity which is dove-tailed; that is to say, it is wider at the bottom than at the top, and the lead is punched in well, and then the stamp is placed upon it, so that if the lead is removed out of it it becomes illegal from being unstamped; but I have known cases where marine store dealers have tampered with the weight, and where there has been a great deal more lead than you observe in this. To prove to my own satisfaction that that really has been done—for I can often say that I can show the animus—I have taken the lead out, and there was the stamp at the bottom. This is done on purpose to make the weight heavier, in order to cheat those customers who brought them goods to sell.

2691. (*The Warden of the Standards.*) What penalties are imposed in case of fraud of that kind?—That depends entirely upon the magistrates. In some cases they inflict the full penalty, and in others a very small one. I remember an important case in point. In the newspaper there appeared two cases in one day; one of them was in my district, where a man had a flour scale an ounce against the purchaser, and the party whom I informed against was fined 5*s.*; but in the other case, which happened at Salford, out of my jurisdiction entirely, and where there was exactly the same amount of inaccuracy, the party was fined 5*l.* I could not see, and I do not yet see, why there should have been that distinction, and they were both stipendiary magistrates who gave those decisions.

2692. Can that be guarded against by any regulation? Must not each case be left to the discretion of the magistrates?—I am afraid it must be; but it looks a pity that there should be a discrepancy in the two cases, because a person reading the account of them without knowing the facts would say, "Oh, "Mr. Mellor's case must evidently have been a very "trivial affair indeed;" whereas I happened to know, by seeing the other inspector, that the cases were precisely the same.

2693. (*Lord Colchester.*) Do you think that there had been a great deal of fraud in Salford, which made the magistrate determine to punish every case severely?—I do not know that there was more there than there had been in Manchester. Salford is of less dimensions than Manchester, containing only about one-fourth of the number of inhabitants.

2694. (*Chairman.*) Do you think it is permissible for inspectors to alter their own standards?—I should not like to see that done. I should think it exceedingly wrong, and in fact it is contrary to the Act of Parliament. After they once leave this department, they never should be altered without being sent up for re-verification, and for this purpose at the proper time a London scale maker should be employed.

2695. In the French system there is a useful specification of all the articles which are required by an inspector; you have nothing, I suppose, of that kind?—No, we have not.

2696. Do you think it right that they should be strictly specified?—Yes. I have tools of every description that are necessary for the purpose of adjusting and stamping, and even repairing measures. For instance, here is a fruit measure (*producing the same*), sometimes the bottom will come partly unsoldered and leak. In the case of a four gallon spirit measure also, that may have got bruised, so as to cause a crack in the copper. I have means and appliances for stretching out all those bruises upon a tinman's anvil, as it is called, and also soldering irons for soldering the cracks up, or soldering the bottoms when they come loose, or putting on a handle if it comes off. Sometimes a pewter measure will crack at the top, and we solder it up, and take a rasp or file, and file it neatly down, and rub it with sand paper and polish it off. That saves people from having to buy a new one, and that is one of the advantages of my being allowed to do all this.

2697. Is not your establishment a very complete one?—It is. I have endeavoured to make it as complete as possible, so as to serve the public convenience to the utmost of my power, and I have never heard any complaint, as I said before, about my adjusting weights there, instead of somebody else adjusting them.

2698. It seems that in some districts there is a combination of two degrees of inspection, one periodical at half-yearly intervals, and another occasionally?—The Warden of the Standards pointed out to me in one of the papers laid before the Commission, that in some place an inspector sends to the shopkeepers periodically, half yearly, or something of that kind, for them to send the weights to be examined, and he finds that to be very advantageous. Here is what I have been doing for 24 years, giving them notice, placarding the streets, and issuing all sorts of notices, and it amounts to the same thing; but I find very little response to these notices. There are some very first-rate shopkeepers and merchants who will send their weights, whether I go to inspect them or no; but they are the exception, and a very small exception too. These are the notices which I have posted on a board in my office.

(*The witness delivered in the following notices.*)

(1.)

"NOTICE IS HEREBY GIVEN,

That all Weights and Measures brought to this Office, for the purpose of being Adjusted and Stamped, and which are not removed within Three Calendar Months from the time received, and the Charges thereon for Adjusting and Stamping, &c., paid, such Weights and Measures will be FORFEITED and SOLD without further notice.

By Order of the Mayor.
(Signed) JOSEPH HERON,
Town Clerk.

Office of Weights and Measures,
Manchester, July 10th, 1846."

(2.)

"Shopkeepers and others are strongly recommended to purchase none but *new* Scales, Weights, and Measures, and to be particular that the Weights and Measures are *properly stamped.*

RA. MELLOR,
Chief Inspector.

Office of Weights and Measures,
31st of August 1849."

(3.)

"Makers of, and Dealers in, Tin Measures, are requested to take notice that no Measures will be stamped at this Office the *bottoms* of which are not *perfectly flat and even,* and sufficiently strong not to give way.

"Patterns of Tin Measures, from quart down to half-gill, may be seen at this Office on application.

RA. MELLOR,
Chief Inspector.

Office of Weights and Measures,
Manchester, 31st August 1849."

These are posted in my workshops, and everybody coming in can see them. As respects the Bread Act, I have placarded the town over and over again, 50 times, with notices, such as that stated by me in answer to *Q.* 2378, and have had thousands of such placards posted, drawing the attention of the public to the necessity of seeing their bread weighed, so that they have the remedy in their own hands. If they come to me and complain, I lay an information, and I also appear as witness, and get a conviction; but it is very rare that such takes place, not once a year, I believe.

2699. (*The Warden of the Standards.*) Are you aware of the system adopted by the inspector at Bath, which has just been referred to? He has the weights and measures sent periodically to him to be examined, and gives a certificate on a printed form, which, he states, very materially facilitates the inspection?—I do the same whenever anyone brings any weights to me, if an inspector has not called

Mr. R. Mellor.
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upon him, and I thus give every facility to shopkeepers. The weights are examined whilst they remain; all those that are accurate and have the proper stamp upon them are returned without charge, and the others are left to be adjusted in due course, so that I think that it perhaps amounts almost to the same thing. I feel satisfied with the experience which I have had in Manchester that if something of the kind that you have been alluding to as taking place in Bath was to be tried there, it would not be responded to in such a manner as to make it worth my while to have it done. I think that I really do already all that is desirable to be done, and that I afford all possible facilities.

2700. (*Chairman.*) Have you known any instance of personal corruption of the inspectors by bribery?—I have known more than one instance where it has been attempted with myself. A man came one day who had been fined several times before, and he came upstairs into my private office, and he wished to compromise the matter. He put his hands in his pocket, and he brought out his hands full of gold, as much as he could hold in two hands. I said, "Whatever I "might have thought of the case before, you have "settled it now, and if you do not disappear down-"stairs, I shall be obliged to kick you down." Of course I reported the fact to my committee at once, and stated who the man was, and all about it; there was no concealment.

2701. (*Lord Colchester.*) Was any penalty inflicted on the man who attempted to bribe in that manner?—No; he was fined in the full penalty for the offence which he had committed against the Weights and Measures Act. There is no penalty for such a case as that.

2702. (*Chairman.*) Has the question ever been raised at Manchester of employing any part of the police force as inspectors?—I never have heard of it. The two inspectors who were first appointed with me had been inspectors of police.

2703. (*The Warden of the Standards.*) Do you think that those two persons were more fitted for the duty from their having previously been police officers?—No, I do not. This opinion may be confirmed in this way. I had a case in June 1860 where an inspector of police in a neighbouring borough had, as the shopkeepers there thought, so far exceeded his duty that they formed an association, with a president, and a treasurer, and a lawyer, and so forth; and they went to the expense of buying brass weights, and I believe they were sent here to be compared, but they could not be verified here, because they belonged to an association not recognized as a legitimate body, I presume. They were not verified at any rate. However, they got them so accurately adjusted in London, that they were enabled to test the weights after the inspector had adjusted and stamped them. They found such inaccuracies that they were determined to take action, and they came to me to know if I would assist them; I said, "Well, I must have the permission of our mayor to "do it;" and he, as he has done on former occasions of a like nature, said, "See justice done." They consulted me as to the course to take, and they took out a summons against this inspector; and I have with me the papers relating to it. On Friday the 8th of June he was summoned; the weights were tested, and they were found to be enormously too heavy, and he was fined 40*s.* and costs. The presiding magistrate said that as he brought people there for short weights, and neglecting to comply with the Act of Parliament, it was only right, when it was clearly proved, as it had been that day, that he had been neglecting his duty and not complying with the Act of Parliament, that he should be fined too. And they did fine him; and it was a very close thing whether he should not be discharged; however, he was not; he is inspector there still.

2704. Do you know any other cases of an inspector being fined for neglect of duty, or misconduct?—I do not know that I am aware of any. I did appear on behalf of the London and North Western Railway Company against an inspector who told some very queer tales before the magistrates. The Railway Company had one of those portable weighing machines for weighing about 40 cwt., at a station some 10 miles distant from Manchester. They had a very careful man who attended to this weighing machine, and they thought so much of him that they believed what he stated, in opposition to what the inspector said. The inspector said that he tested the machine by raising the steelyard to the top of the guard. The steelyard is level when it is at the bottom, just the same as this scale is now before me; but if he raised it to the top it would be out of the horizontal position, and it is quite improper to be tested in that manner. The Company were determined to resist this matter, and they came to me to assist them, and I got permission as before from the mayor. He said, "Yes, see justice done." I took a small model of one of those machines, for I had got one of them for the purpose of exhibiting to the magistrates, if necessary, the various ways in which they are fraudulently used. The inspector showed the magistrates by this machine that he tested it from the centre. Now, as to the centre, he would have to go by his eye only. But no man could put that steelyard, without any guide whatever, exactly into the middle of the guard and hold it there. However, that was what he swore to before the magistrates, and got the company's people convicted in 20*s.* or 40*s.* There was a power of appeal, and they instantly gave notice of appeal. They did appeal, and it went to the sessions, and on that occasion this man deliberately swore that he tested it from the bottom. I was asked by the council for the Company if I had heard his evidence given in court at Macclesfield. I said I had, and that he there stated what I have already told the Commission, that he started by declaring that he inspected it and examined it in a totally different way. The result was that the conviction was quashed, and the expenses were thrown upon the inspector, as I believe; and I was told that he had a very narrow escape from dismissal. He was an inspector of 30 years standing.

2705. Will you explain your kit or your apparatus for inspecting?—This is what we call the weight bag (*producing a leather bag*), with compartments for a 7 lb., a 4 lb., a 2lb., and a 1 lb., and this is carried by the inspector's assistant over one shoulder. Then in the scale bag (*producing a second leather bag*), which is carried by the assistant over his other shoulder. The inspector has three pairs of scales, which are placed in three separate divisions of the bag, and are thus protected from the weather. He has a scale to weigh 14 lbs., another 4 lbs., and down to 1 lb., and another from $\frac{1}{2}$ lb. down to $\frac{1}{2}$ dram. We have a fourth when we go out to test heavy weights, a 56 lbs. and a 28 lbs.; and we have a little wheeled truck, which the man draws, just to hold the large beam, and the necessary standards. He takes them all down to 1 lb. and $\frac{1}{2}$ dram in this way.

2706. Have you anything of the same kind for measures?—We take out only the gallon and the quart downwards. The measures from the quart downwards are copies of the standard, but we find it more convenient to take the gallon of a conical shape, with a lip. If any seizures are made by that measure, as a matter of course they are tested at the office with a copy of the standard.

2707. Are those carried in the little truck that you spoke of?—No, in the hand. There is only one assistant who goes with the measures, but there are two go with the inspector when those large weights have to be examined. The truck is light, and it is made very convenient to protect weights and scales from the weather, and it runs very easily. In addition to the other things in the kit, I have brought with me an iron tripod, which I use for out-door inspection, on which I suspend the scales for examining shopkeepers' weights, two pairs on the upper part and one pair on the lower (*producing and describing the same to the Commission*). We also test weighing machines belonging to the railway companies, and canal companies, and carriers, and all

those concerns where they have such machines only, and no scales and weights. We simply take out 5 cwt. or 10 cwt. weights in this same truck, and it is capable of carrying that weight, thereby enabling us to test those cheese weights at the end, which represent 10 cwt., as many do. I have here a list of the convictions against a carrier in Manchester, amounting in number to 17, and extending from 25th August 1846 down to 11th January 1867.

2708. A carrier makes his charge by weight, does he not?—He carries by weight, but it is not merely that to which I was referring. Looking at it in that light, you would say that when carrying at 8*s.* per ton from Manchester to Liverpool, giving short weight is only a very trifling matter; but the Commission must bear in mind that those carriers are the third parties standing between the buyer and the seller. That is to say, a merchant will give an order to a purchaser, for say 1,000 bushels of oats, and the merchant is paid for this quantity by the buyer. But the seller does not weigh the oats, the carrier, to whom the order to deliver is given, and in whose possession they remain, weighs for both parties. If the purchaser complains of short weight, the merchant or seller would say, "I gave you an order for "1,000 bushels of oats, and if you have not got that "quantity, you must look to the carrier not to me for "redress." And the same with malt and with beans, or peas, or wheat; everything of that kind a purchaser buys, you have to take it for granted that the carrier's weights are correct. It will thus be seen by the Commission how very important a part the carrier plays in the scene, and how necessary it is that his weights, &c. should be kept strictly accurate. In order to make them as much so as possible, whilst my instructions are to visit every shop twice a year, I make a rule of visiting these carriers four times every year, so that their weights cannot get very far out of order in the meantime, the visits being so frequent. I also have issued some instructions to railway carriers and canal companies to appoint some one to go round every morning to the weighing machines, and look at the scales and weights and measures. And if they get a careful set of men for that purpose, and give them is couple of shillings a week for that extra duty, it a quite worth their while. They would save it in fines, and it would be more satisfactory to themselves. Many of them have done so with very great satisfaction, inasmuch as it is shown in my books that I have not had occasion to fine those people for a long time.

Mr. R. Mellor

21 July 1869.

The witness withdrew.

Adjourned to next Wednesday, 28th July, at 11 a.m.

Wednesday, 28th July 1869.

PRESENT:

THE ASTRONOMER ROYAL IN THE CHAIR.

LORD COLCHESTER.
PROFESSOR W. H. MILLER, F.R.S.
THE WARDEN OF THE STANDARDS.

MARTYN ROBERTS, Esq., examined.

Martyn Roberts, Esq.

28 July 1869

2709. (*Chairman.*) Are you one of the magistrates of the county of Brecon?—Yes, and of Monmouthshire, and deputy-lieutenant of Breconshire.

2710. Has the subject of weights and measures attracted your attention to a considerable degree?—It has. A great part of the work of my district comes upon my shoulders; I am no sportsman and my own time is spent in scientific experiments; my colleagues having other avocations, much of the work of the district is thrown upon me. I have taken very great interest in the working of the police, especially with reference to weights and measures, defects in which are a very great grievance to the poor.

2711. It appears from the reports which have been made to this Commission that one complete set of avoirdupois weights and measures of capacity and one standard yard have been officially verified for the county of Brecon, is that the case?—Yes, and there is one for the borough of Brecon also.

2712. Are there no standard troy weights?—No.

2713. Nor of those relative to troy weights, decimal bullion standards?—No, there are not; they have never been asked for, and we have not had any bullion dealers. Watchmakers we have of course, and we have druggists, but no bullion dealers in the county to my knowledge.

2714. Is it not generally supposed that there are silversmiths and persons connected with the sale of plate, and pawnbrokers in most boroughs?—Yes, but the sale of plate would be the sale of the workmanship being more than the intrinsic value of the metal. I do not know whether they sell spoons and forks by weight as silversmiths in London do, but such things as ornaments do not go by weight. We have chemists and druggists and they use troy weights, and therefore it would be highly desirable that we should have a set.

2715. Is it your impression that troy weight is not used at all in those sales in your county?—By druggists it is, but there are no bullion dealers; nor, I think, are troy weights much used by silversmiths. In fact we have only watchmakers that deal in the precious metals.

2716. As far as troy weights are used is it your opinion that the inspectors ought to verify troy weights in shops in the same manner as avoirdupois?—Yes, in the same manner as avoirdupois, and that we should have a standard set of course; we now have no standard set.

2717. Has any application been made by you for a standard set?—No; in fact the subject is one in which the magistrates have taken very little interest.

2718. The county standards which are in proper custody are applicable for testing weights and measures, are they not, throughout the whole county of Brecon?—Yes. Our one county set of standards is carried round the county at irregular intervals; by that standard the shopkeepers' weights are tested and adjusted. The inspectors take this one set round at very irregular intervals a great deal too far apart indeed, and by that standard they adjust the shopkeepers' weights.

2719. Mention has been made of subsidiary standards; are they in use, or are they required?—Some two years ago, I suggested to the Quarter Sessions that it would be highly desirable that we should have a subsidiary set at every police station throughout the county, to enable tradesmen to adjust their weights when they chose there, because, with one standard only coming round the county, there was sometimes an interval of 15 months between each visit. I recommended a subsidiary or a local set for every petty sessional division; and in order to save expense, I suggested that they should be made of iron galvanized. I suggested that to the warden of the Standards; but on making the experiment, after getting the sets, I am sorry to say that I found that the zinc rust was easily rubbed off, so that I was in error in suggesting that. I now say that it is highly desirable that those local standards should be supplied; in fact, it is essential to carrying out the law, as it ought to be, that there should be local sets of some

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hard metal. I was surprised to find in a work I have seen that glass is very absorbent of moisture, otherwise glass would be just the thing that we desire. If glass is subjected to heat for many days, it becomes a kind of stone (Romford made some experiments upon that), and if it is then found non-absorbent of moisture, I think that would be just the material for the local standards; but I confess that the galvanized iron is a mistake.

2720. What is the number of the police stations where you would have those subsidiary standards?—The number of the petty sessional divisions is nine, but we have police stations at villages which are very far distant from the petty sessions, and make up the total number 14. For instance, there is one at Llanwrtid, which is 14 miles distant from the nearest petty sessional division. The petty sessional divisions are sometimes laid out at too great distances to make it convenient for the tradesmen to bring their sets to the subsidiary standards there, and consequently we should have a set at those police stations.

2721. You mentioned that you have made a trial of those galvanized iron weights, but, as we understand, you have now abandoned them?—Yes; I condemn them certainly, because of the grey rust which is friable and easily rubbed off. Galvanized iron only means iron covered with zinc; there is no galvanism about it.

2722. Is there not, for many engineering purposes, a great objection to galvanizing, because it makes the iron soft?—Yes, it becomes rotten.

2723. Are those divisional stations unfurnished with standards at the present time?—They are furnished with those galvanized iron standards, but we do not use them for convictions; we allow the tradespeople to use them for comparisons, if they like; but we do not venture to use them to convict for false weights, because they are not legal standards.

2724. It is therefore absolutely necessary at present, is it not, for the county inspector to carry about with him the county standards?—Yes, the single set of standards.

2725. In the management of those standards, have you had occasion to send them to London for re-verification?—Yes, once within many years. We were 12 years without verification, I think, which was a very wrong thing to do.

2726. Was not expense incurred in that?—Yes, the expense for re-verification was 9*l.* 14*s.* 6*d.*

2727. Was objection made at the board of magistrates to incurring that expense of re-verication?—No, because we are obliged to do it. On the contrary, they gladly fell in with this scheme of having a fresh set for every petty sessional division; they saw the necessity for it.

2728. In what year were your standards sent for verification?—1868.

2729. You are aware that a period is assigned now by law before the expiration of which they ought to be re-verified?—Yes.

2730. And you are aware that without re-verification they would not be legal for conviction?—Yes, they would be illegal. I do not know whether I might at this moment state that I have a plan that would set aside the sending of them up to London for re-verification and save much expense; because supposing you had to pay 10*l.* or 12*l.* for re-verifying a set, and had 50 sets in a large county, that would be 600*l.*, and if you take the 52 counties of England and Wales, to say nothing of Scotland, that would be 31,000*l.* for re-verification, which is a very serious item. According to my plan of having Government inspectors to travel the country once or twice a year, who would verify the local standards at the county town, certainly 31,000*l.* would go a long way in paying that expense.

2731. Is that part of the plan which you developed in your letter addressed to the Commission, which you have delivered to the Warden of the Standards?—Yes; I would beg leave to put this letter in as my evidence:—

"Weights and Measures.

"To the Standards Commission.

"Gentlemen,

"I beg leave respectfully to submit to you my plan for a better inspection of weights and measures throughout the kingdom than now exists, for maintaining a true standard for the sale of articles to the people, and also for placing within reach of the buyer a ready means of detecting any deficiency in the weight or measure of the goods he buys.

"It is of great importance to workmen that they get full weight or measure for their money; their wages are principally spent in bread, sugar, tea, &c., bought in small quantities at a time, and it is the poorest workman who is most sorely cheated, for his purchases are always of small amounts, and the loss is not only thereby greater, but also more difficult of detection than when larger quanties are bought at a time.

"I hold that all users of weights and measures for buying or selling, are bound in honesty to maintain their sets up to the legal standard, and be sure that the quantity of goods they profess to sell is the true quantity.

"Government is in no manner bound to keep a tradesman's sets aright, but only to offer him every facility for testing them with the legal standard, and Government should also give the consumer a ready means of ascertaining whether the quantity of goods sold him is a true quantity. Tradesmen frequently make an appeal against convictions, saying that the inspector had not for months past adjusted their weights. But the law says, 'You shall not use false 'weights or measures, and if you do you shall be 'punished.'

"To accomplish the ends I have in view in this matter, I would have a standard set of weights and measures deposited at the police station of every petty sessional division throughout the kingdom, and also at police stations in such villages as may be very distant from any petty sessional court. These standards should be accessible at all convenient times to tradesmen, for the purpose of comparing their sets with the standards; and buyers of goods should also be at liberty to compare the weight of the article bought with the standard. A trifling fee should be payable to the police for each testing.

"By the system of inspection now in operation much facility is given to fraud. The inspector goes his rounds to 'inspect,' his progress with cart, horse, and police attendants, giving full notice of his approach, fraudulent tradesmen hasten to conceal their false weights and bring out a good set for inspection, and as soon as the officer's back is turned these weights are put safely away and the false ones brought out for the next poor customer; the same thing happens when the police attempt to detect and seize false weights; they make an imposing progress from shop to shop; the country is well alarmed; warning runs from place to place, and all dangerous weights, &c. put safely away; this I know to be fact, and in one instance a corpulent lady crouched over a batch of false beer measures, but being unfortunately upset she disclosed her hidden brood to the police. Where there is only one legal standard in a county this bad system of 'grand rounds' will exist, for the standard can only be in one district at a time, and it must there be carried from shop to shop on the same day, otherwise it would be impossible to test the whole county in any reasonable time.

"But if we place a legal test in every petty sessional division, the police can at any moment, without giving warning, pounce down upon suspected weights and test them without delay.

"But to return to the plan I suggest. Having these subsidiary standards at every police station, every tradesman must register himself in the police books, stating the number and kind of weights and measures he intends to use.

"The police must visit the premises of each registered person at least once in every three months, *but at uncertain intervals*, in order to ascertain whether

the tradesmen's sets are true and conformable with the register, and to seize any false or unregistered weights, measures, or scales; and entering opposite the name of the tradesman in his register the result of the police constable's visit. The constable should also be at liberty to seize all goods (whether in shop or open market) made up for sale but deficient in the pretended weight. The Act of 22 and 23 Vict. c. 56, sec. 7, gives power to clerks of markets to do this, but I would extend these powers to police constables.

"I think the French system of placarding the convicted tradesman's name is objectionable; for if a fine should by accident be unjustly inflicted, it would be bearable, but an unjust exposure by placard would be ruin.

"I would abolish the office of county inspectors, and in their place appoint two or three Government '*general inspectors*' for the whole kingdom; they must be skilled men competent to verify and direct the adjustment of county standards with the set brought by them from the Office of Standards in London.

"All the subsidiary or county sets should be brought by the superintendents of police at least once in the year to the county town or other more convenient place, there to meet the 'general inspector' of the district, whose duty shall be to verify the county sets by the Government standard; also to visit the several police districts, see that the register is carefully kept up, and as far as is possible maintain the whole system in good working order.

"Borough tradesmen should be open to visits from county police, for borough police are not likely to be too sharp upon their masters. In a town not very distant the mayor is a grocer, and his worship will surely not be annoyed by his own police.

"All scales under 5*l.* in value should be seizeable if false.

"It would be well that no iron or other very oxidable metal should be used by tradesmen.

"A very hard non-oxidable metal is the best material for weights; its hardness may be tested by abrasion; its resistance to rust by making it one of a 'galvanic pair,' with platinum or other non-oxidable substance.

"Glass and earthenware is said to absorb moisture; but it is worthy of trial whether glass subjected for many days to a high heat (when it becomes like stone) would not be a good material for the making of weights.

"I trust the scheme I have above submitted will meet with your approval; from all the information I can gather from two counties, it is thought very well of and much desired in operation.

"Yours obediently,

"Martyn J. Roberts, J.P. & D.L.

"Pendarren, Crickhowell,

"26th July, 1869."

You will see that the practical difficulty of one set is this, that the inspector goes round the county and makes an enormous fuss, and everybody hides his false weights. What I want is to have a policeman, or an inspector, to go at any moment into a shop and say, "I think that is a light weight, and I will test "it;" but you cannot do that under the present system.

2732. For that purpose it would be necessary that there should be a considerable number of sets in each county?—14 sets would be sufficient for the whole of our county.

2733. Can you mention the number of shops in your county where weights and measures are used?—We have two districts and there are 1,204 shops, but I think in addition to that there are several beer-houses using beer measures not included. I think that number only includes the licensed victuallers. There are 404 shops in one district, 152 shops in another, and 800 beer-houses and licensed ale-houses altogether in our district, so that if we take 1,300 shops, including 700 or 800 beer and ale houses, we shall be near the mark.

2734. Those beer-houses are subject to the same inspection as the others, are they not?—Yes, for weights and measures; and under the new Beer Act of this session, they are subject to our licensing, but before this we had nothing to do with them, otherwise than convicting them for offences. I may state that our population was 61,627 by the census of 1861; it is a very sparse population. We have the large mining towns of Brynmawr and Beaufort. Those are large iron manufacturing districts with a great number of beer-shops and public-houses and small pedling shops, where the greatest cheating goes on. About a month ago I fined a man there who had his scales so adjusted as to be six ounces short in every draught.

2735. With the exception of the mines the county is very sparse in its population, is it not?—Yes, it is a sheep county.

2736. How is the inspection of those districts effected?—By two inspectors of police. The police officers do not attempt to interfere without the presence of the inspector.

2737. Are those inspectors connected with the police?—They are superintendents of police; we have but two superintendents of police in the county.

2738. Do the inspectors perform the duty entirely themselves?—They perform the duty with the assistance of the private constables; they go round the county with a cart and a horse, taking the standards with them, and calling in the assistance of the police constable of the locality, one or two or three, as may be required.

2739. Do they not receive assistance from anybody except the police force?—None whatever.

2740. (*The Warden of the Standards*). I presume that the police never act by themselves without the inspector?—No, they do not go in and detect the false weights; the inspector does that.

2741. (*Chairman.*) How long has that system existed?—Ever since the Rural Police Act was brought into force, which was in 1858, I think.

2742. Before that time there were county inspectors, were there not, much the same as in the counties of England?—Before that time we had six inspectors who were then also the superintendents of the parish constables. We had a lot of parish constables, and over them inspectors or superintendents, as they were called, and there were six of them who performed these duties. Since the Rural Police Act came into force, those superintendents have ceased to act. We have now the regular police superintendents.

2743. Under the former system were the inspectors appointed by the magistrates in quarter sessions?—Yes.

2744. And are the police superintendents appointed by the same body now?—Yes, by the same body.

2745. Have you any register of the number of weights and measures compared and stamped?—Yes, we have.

2746. For instance, can you give us the number for the two last years, 1867 and 1868?—The total compared in 1867 were 3,634, and the total compared in 1868 were 3,835. The total number seized in 1867 were 269, and the total seized in 1868 were 26.

2747. Are those operations strictly registered?—Yes, they are.

2748. In books at the command of the magistrates in quarter sessions?—They are at their command, but they are very seldom looked at; they are kept by the superintendents.

2749. Are any instructions given in writing or otherwise to the inspectors?—None. It is a subject, as I said before, which excites very little attention generally amongst the magistrates. I have taken up the subject for the last two years, but hitherto it has excited very little attention.

2750. In your letter to the Warden of the Standards of the 15th of May last, you called particular attention to the necessity for making it an offence to sell any article deficient in its reputed weight or measure; in what way would you propose to deal with that?—At that time I also stated that there would be a difficulty and rather a danger in convicting sometimes unjustly, where you might get a roguish

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informer. For example an informer might go into a shop and ask for 1 lb. of tea, and he might drop a little out before he came to the police, and then swear that he had it short. I think that could be overcome in this way:—Supposing an honest man to be of opinion that he was cheated in one instance he might mention it to the police, and go back again for another purchase, taking care that the policeman is close at hand; the policeman would then appear at the door, take possession of the article, and convict the seller. Then again, it would be very easy in markets where butter and other things are made up in small weights, to detect fraudulent weights, because you have merely to lock the market gates and bring out your standards and test everybody's weights there and then. I should tell you that under the present Act the clerks of the markets have power to do that, but not the police, and I should be glad to see this power extended to the police of seizing in markets goods of short weight, in the same manner as they should seize in shops goods of short weight.

2751. If I remember correctly, clause 7 in the 22 & 23 of Victoria, chapter 56, the clerk of the markets has not power to seize, but only to lay information?—Yes, they can seize; but that does not make much difference. It is only the loss of the value of the goods that he must seize for the purpose of convicting, to begin with; he must weigh and prove it, and the penalty would be much greater than the value of the butter, or anything of that sort. I should wish the power in that section to be extended to the police, not only in markets and open places, but also in shops.

2752. You adverted to the power which a dishonest informer might exert if he were allowed to give information upon the weight of goods. That I presume implies that the informer receives some part of the penalty in those cases?—Yes, the informer receives a part of the penalty; but the police do not when they inform. The penalty is divided between the county and the informer, and one-half goes to the informer; but in the case where the policeman is the informer it goes to the superannuation fund, by which he personally does not immediately benefit. If he became a pensioner upon the fund he would indirectly benefit; but he does not benefit directly by it; it goes to the general superannuation fund of the county, which fund is for the purpose of pensioning off aged and disabled policemen.

2753. Under the present system the policemen are the only persons, are they not, who interfere in that way?—The only persons, except in the cases of short weight of bread.

2754. Are you aware that by section 2 of the Act of 1859 there is a penalty upon the sale of weights or measures which are faulty?—Yes, I am aware of the law; but it has never been acted upon to my knowledge, and I know this, that beer-sellers often order false measures. I went to an earthenware dealer in Abergavenny and asked him how he came to sell those things, and he said, "If I sell a true measure "I should not sell any at all; they order false "measures."

2755. Can you suggest any plan by which that evil could be effectually remedied?—The seller now is liable to a penalty; but I would bring it more prominently before the police, that they are to seize such. I am not aware of a single manufacturer or dealer in earthenware or an ironmonger being fined for the sale of false weights and measures. I do not think it is a matter that has ever been thought of.

2756. (*Professor Miller.*) Are those false measures limited to earthenware, or does what you say apply to pewter?—To measures for selling beer and spirits; they do not use pewter measures in those beer-shops; they use earthenware.

2757. (*Lord Colchester.*) Are not those manufacturers of weights and measures regularly inspected by the police?—No. We have no makers with us; but I am not aware that any makers of weights have ever been inspected in any part of England. The only way is, that we should seize them whenever they are found, whoever made them. The difficulty would be if you go into an earthenware shop and say, "I "want to see your quart measures," that they would say, "They are not intended as quart measures, they "are merely cups," and you cannot convict in such a case.

2758. Do those measures which you state are sold, being ordered as false measures, bear any mark on them?—Sometimes they do, and sometimes they do not.

2759. If they bear a mark they cannot pretend that they are cups?—No; but it is very seldom that they are marked.

2760. Do you think that it is a desirable provision to insist that every measure should be marked?—Yes. I should do away with stamping; there is no occasion for stamping to indicate its having passed through the inspector's hands; the tradesman has got to see to that; but I would have the contents of the weight or measure marked in plain figures upon it; a quart should be a quart, and a pound a pound, and so on, and a hundredweight a hundredweight; but the stamping I think is unnecessary, because all we want to do is to catch the false ones, and not to help tradesmen by stamping them, because I know that stamping is open to a great deal of abuse.

2761. Although there may be irregularities in the practice of stamping, can you suggest anything equally efficient for maintaining the weights of the proper size in shops?—Yes; my suggestion is not to stamp, but to give every facility to the tradesman to test his weights and keep them at their full standand, and to come down upon him at irregular intervals without notice, and catch any weights you can that are false, and be a constant rod over him, in fact. I want to put away the leaning upon the inspector by the tradesman for the maintenance of his weights in good condition. I do not want him to lean upon the inspector.

2762. Is there not one difficulty in abolishing stamping, that it is a protection to the tradesman against a careless or dishonest maker, seeing that he could be sure at any rate that his weight when stamped in the first instance was right?—I would give him the local standard to go and test it by when he likes.

2763. And it is part of your general proposal to have the local standards multiplied?—Yes, in every petty sessional division I would have a set of local standards. If you do not have local standards, you must fall back upon the present system of going round once a year.

2764. (*Chairman.*) On your proposed plan of having numerous local standards, residents in the country would, in some cases, still have to go several miles, I presume, to find one?—No, I have gone on the assumption that there is always a police station in every considerable village, if there be not a petty sessional station there; and I would have the weights in that station, so that no tradesman would have to go above a mile or two.

2765. In fact, they would be in all the small centres of population?—Yes, certainly; and the cost would be very trifling.

2766. So that the general plan which you propose would be that an official verifier from this office should go to all the county standards, and that the county standards should travel round to the divisional standards?—No, my proposal is that the general inspector should go to the county town or other convenient place, and that all the subsidiary standards should be brought to him there for the purpose of verification, and that he himself should afterwards travel in the district to see that the system is in proper working order, to see that the reports are kept up and the like.

2767. So that the operation of testing the local standards would be performed in the county town?—Yes, one day in six months, or one day in a year.

2768. Would it be advantageous that the official inspector should go round to the local standards to test them in their places?—The local divisional

standards, as I say, should be brought to the general inspector to be reverified at the county town.

2769. You would prefer that plan to his visiting them in the locality?—Yes, certainly, because if he were to travel round from locality to locality the general inspector could not work the county within a reasonable time, whereas one day or two days would be sufficient to verify the standards of the whole of a large county at the county town.

2770. Are you able to state what amount of inaccuracy is tolerated in any case under the present system?—We convict upon a very small deficiency.

2771. But for that there is perhaps no fixed rule?—None whatever.

2772. It rests with the discretion of the sitting magistrates at the time?—Quite so.

2773. (*The Warden of the Standards.*) Do you convict when the weights are too heavy or the measures too large?—Yes, certainly, especially if we know them to be buying weights; but whether they are light or heavy we convict; of course people buy as well as sell.

2774. (*Professor Miller.*) Is the custom given up in Wales of selling certain things, such as butter, by lbs. of 18 or 20 ounces?—It is not given up; there are many lumps of butter called pounds, which are more than 1 lb., especially in small country places.

2775. (*Chairman.*) In those cases is the number of ounces well understood?—No, for instance, a woman says, "I have got a stone at home that I put in the "scale, and my grandmother had it before me, and I "intend to sell butter in that way." It is no aliquot part of any weight.

2776. In case of conviction the amount of the fine is always regulated, is it not, at the discretion of the magistrates within legal limits?—Yes, within the 5*l.*

2777. Do you take into account as well as you can the effect of wear and tear, or of faults in the origina. construction of the weights?—We allow nothing for that; a false weight is a false weight, and we do not care how it has become so; it is equally a cheat upon the poor. When the false weights or measures are before us, we commit execution upon the measures in the hall; we smash them all up before their eyes, which has more effect upon them, I think, than the fine; we sometimes smash, perhaps, 100 cups at a time.

2778. Have you had applications in any shape for your sanction to different weights or measures from those which are recognized under the imperial system?—None.

2779. You are not aware that a wish has been expressed for a weight of 3½ lbs.?—No, it would be of no use in our county; I do not know what it might be in peculiar localities.

2780. Is there any other remark which you wish to make to the Commission?—None other than what I have comprised in the statement which I have handed in to the Commission. I would, if possible, avoid having iron weights at all for tradesmen. It would be a hard thing to force them to use a certain metal, but when people sell salt and articles of a corrosive nature it very soon affects the weight; the iron scales often become very quickly deficient, and if it were possible, without being a hardship upon tradesmen, to require them to have all their weights of some non-oxidizable substance, it would be very desirable, but we must not interfere with the liberty of the subject too much.

2781. The difference of expense in the raw metal is considerable, is it not?—Yes; the difference in the expense would be this: iron would be 1*d.* per lb. and brass about 1*s.* 6*d.*, which is a very considerable difference.

2782. (*Lord Colchester.*) I understand that the inspection in your county is conducted by the police under two inspectors?—The two superintendents of police are the inspectors, and the police constables assist them.

2783. Do the superintendents receive special remuneration for their duty?—The superintendents have an allowance of 4*s.* a day for themselves as travelling expenses, and 5*s.* a day for their horse.

2784. Although they are paid for their expenses, they receive no remuneration corresponding with the inspector's salary?—No; they are paid as policemen.

2785. Do you not think it desirable that there should be a fair remuneration for the inspector?—I would abolish the inspector entirely.

2786. I mean the police superintendent charged with the inspection; would not you allow him any extra remuneration?—I would abolish that office entirely; he should have nothing to do with the inspection.

2787. But where he is employed, do you not think it desirable that he should have some special remuneration for it?—I do not think it is. In Monmouthshire, the inspector, who is not a policeman, gets 70*l.* a year and his charges, which amount to 15*l.* or 20*l.* a year besides.

2788. Do you not think that the payment by fines on convictions is very undesirable?—The inspector is not paid for convictions in our county.

2789. Do you think that the system which exists in some parts of England of so paying him is undesirable?—Yes; anything that is a bribe to a man to convict is a bad thing. I have been credibly informed that some years ago, when the inspectors as informers received part of the fines, an inspector (now dead) adjusted a large number of weights falsely,—for the purpose of some months afterwards seizing them, obtaining convictions from them, and pocketing a considerable portion of the fines.

2790. Do not you think that, on the other hand, there may be slackness where they are not so paid?—Policemen are human beings, and unfortunately they are open to private interests the same as other men are. But I do not expect any such slackness.

2791. Are they not again liable to be bribed not to seize?—A bribe given by a tradesman would, I think, be immediately detected. There is sufficient jealousy among the men themselves to tell if anything of that kind were done. If there were anything done for the purpose of getting a conviction, they would hold together; but if anything is done to avoid a conviction, they would be sure to tell. The police constable who was with the inspector would tell, I am sure. I have letters every week telling me something or other.

2792. You think that there is no fear of a man who is not paid by fees, trying to levy black mail by threatening to convict?—No, he could not do that.

2793. Do you consider that an inspector could obtain convictions when he pleased?—Unless the magistrate was very obtuse, he could not.

2794. You do not consider, as a witness did with respect to the metropolis, that the whole neighbourhood is at the mercy of the inspector, if he has any inducement to obtain unjust convictions?—No; in a large town, where the magistrates have not that personal knowledge which they have in the country, it may be more easy; but in the country anything of that sort would be sure to come to me privately.

2795. I think you stated that at present there was much inconvenience in the plan of the inspector going through and inspecting the weights of a whole village at the same time?—Yes. As he goes now through the whole district, when he goes to one person, that person sends his servant quietly and tells his neighbour that the police are coming. The remedy I think for that is for the policeman to come down at uncertain intervals quietly, without making any fuss about it. If you have only one set of standards, and the policeman goes to a shop to-day and seizes a weight which he thinks is false, he has to send up to Brecon for the standard to test it by, and then he may have the weight in his possession for a week. The tradesman may say, "You have had my weight for a week in "your house and you have been tampering with it." He should be able to bring the standard to the tradesman, so that he may see and admit that his weight is wrong.

2796. You would abolish all that sort of authorisa-

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tion which the stamp now affords?—Yes; I think it is an authorisation for evil. I think it is not the slightest check upon the maker.

2797. Did you state that the earthenware shop to which you referred to a short time ago, was in your own county?—Yes, in one of my own counties.

2798. Has that shop never been inspected?—No, it has never been inspected.

2799. And you consider it desirable, do you not, to bring those people under as much inspection as the tradesmen who use weights and measures?—Yes, decidedly; if the police as constables had power to do so, it would be done; but the inspector does not choose to do those sort of things.

2800. Do not you think that he would be more likely to do so if he got something by convictions?—No; I think it is a very bad and dangerous plan to pay for convictions. In game cases it is done; the informer gets half the penalty, but it is a very bad principle; it would lead the inspector to force convictions.

2801. Do you think that the magistrates could not be trusted to prevent that?—I cannot speak for my neighbours.

2802. With regard to seizing balances, do you think that that power is very desirable?—Balances under 5*l.* in value I would seize. That is to say, if you seized a weighing machine which was worth 100*l.* it would be an excessive penalty; but under 5*l.* it would not be. Balances are generally worth about 2*l.*

2803. Do you see any reason for that provision of the law by which weights may be seized in shops but not balances?—I do not see the reason for the distinction, except that the penalty would be so heavy in seizing a deficient scale, that it would be perhaps more than the crime would warrant.

2804. It would stop all trading if you seized the balances, would it not?—Yes; but a fraudulent trader ought to be stopped if it was so. In fact, the grievance is so great, that I would hardly object to any stringent measure to put a stop to it.

2805. Do you think it would be of much use seizing a balance for the purpose of conviction, seeing that the fraud might be merely of a temporary character, and disappear, like moisture upon the scale?—I convicted a man about a month ago, and fined him 5*l.* for this. His scale was a flour scale; it had become very rusty, and the rust had accumulated at the back until it was as hard as a stone. He had not taken the trouble to adjust it, and there was 6 ozs. deficient in each draught.

2806. Have they not a way by which they moisten the scale?—They have thousands of dodges.

2807. So that if a scale was brought before you three, or four, or five days after it had been seized, the moisture would have evaporated?—The amount of moisture would be very small that would be held by the scale; but the way they do it is by a loose weight, or an additional piece of metal, which is against the law. They very often hammer a bit of lead on underneath the scale out of sight. Sometimes I have seen a piece of lead sliding along the scale, so that they could adjust it as they liked.

2808. Then by keeping a balance in the same state you might bring the man up for it?—Yes. By the present law, anything that is not an integral part of the scale itself is illegal.

2809. Do you attach much importance to the balance ball?—I think that there ought not to be any balance ball at all. I think that a scale ought to be adjusted truly, and be unchangeable.

2810. You do not think that the balance ball is of any use to an honest tradesman for the purpose of adjustment?—No; his scales should be permanently adjusted. The scale itself should be intact; there should be no addition to it of any kind.

2811. (*Chairman.*) Have you condemned balances on the ground of having loose balls?—I have for having loose weights attached to them.

2812. (*The Warden of the Standards.*) Have you condemned balances which have had a balance ball as a part of the original construction of the balance?—I am not aware of any sort of balance ball which would be called a legal balance ball; but any piece of lead or stone, or any weight attached to a scale we have considered illegal.

2813. (*Lord Colchester.*) I think you stated that you are against making any allowance in convictions for any cause which had disordered a scale or weight?—We must not go into causes, we must go into effects.

2814. You would fine as heavily a man who sold small quantities as a man who sold large ones?—If a man sold 20 lbs. of flour short 6 ozs., the loss to the buyer would not be as great as in the case of a man who sold half a lb. of tea, because tea is of so much more value. When you come to sell large quantities of things they are generally of inferior value. But I would fine as heavily.

2815. Take a man who sold the same quantity of valuable articles, should you fine him more severely for his false weights than a man who sold probably cheaper articles?—A cheat is a cheat, whatever the amount of loss; the punishment is for the crime, and should not be graduated by the amount of loss to the buyer.

2816. Do you think that any indulgence is due for small errors to those trades where the weights and balances are likely to get out of order very easily, like a cheesemonger?—In the case of those who sell salt goods, their weights are very apt to be corroded; but what consolation is it to the buyer to say that the weight is corroded by salt. The buyer may say "I went "home so much poorer; you must sell me the proper "quantity; you agreed to sell me a pound and you "shall do so." If you allow any tolerance of that kind, it will lead to no end of evil. If you agree to sell me a pound of tea, and you sell me less by reason of your defective balance, I would make you suffer for it.

2817. In the case of publicans, you would probably agree that it is very desirable that they should not be allowed to use a measure which had not the contents marked upon it?—Certainly.

2818. That would get rid of the difficulty, would it not, about whether it was a drinking cup or a measure?—Yes; the only way would be to have the contents marked upon it. I think it is essential that we should have those local standards, and not go round to seize in procession. You must do it secretly, and at irregular intervals. That is the great point that I want to insist upon.

2819. Do you think that the inspector should be allowed to adjust, or would you always prohibit that?—The onus of adjusting should be on the tradesman. The police should offer him the power of testing his sets by a legal standard, and the tradesman should see that they are put right.

2820. There are some cases, are there not, where the inspector also undertakes to adjust?—Yes; but I do not think that that is advisable. The tradesman must be forced to keep a true set; never mind how, but we give him the means of seeing that his sets are true, and he should keep them so; he could employ an ironmonger or plumber to assist him in adjusting the weights by the legal standard at the police station. I want to throw the whole onus of keeping them up to the mark upon the tradesman, and that the police should have nothing on their shoulders except the detection of frauds. A tradesman is bound to sell what he professes to sell, whether it be a pound or a quart. I am sure that such a measure would be of immense importance to the poor.

2821. (*Chairman.*) In a paper before me it appears that in the Hay division the inspector of weights and measures receives 10*s.* 6*d.* per day for himself and horse, and in the Ystradgunlais division he receives only 4*s.*?—That is for himself, and he has 5*s.* for the horse besides.

2822. Then there is no such inequality in your division as I have supposed?—No.

2823. I presume that the county of Montgomery

has a smaller population per square mile than Brecon?—I think it has; but it is out of my district.

2824. Would the same general plan of inspection answer in that county?—I think so. The plan that I suggest is one suitable for the whole kingdom, and I hope that some such measure will soon be brought to pass. In sending up the standards to be verified from the country to London, a vast deal of time is lost, during which we are totally at the mercy of the tradesmen. I believe our set was five months before it came back again, and we have only one set.

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The witness withdrew.

EDWARD CRESY, Esq., examined.

2825. (*Chairman.*) I believe you are principal assistant clerk in the Metropolitan Board of Works?—Yes.

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2826. Does the business of inspection of gas meters in the metropolitan district come before you?—Yes.

2827. Was the authority over the inspection of gas meters originally with the county authorities, that is to say, with the bench of county magistrates?—It was.

2828. And it was transferred to the Metropolitan Board some years ago?—Yes, by an Act passed in 1861, entitled "An Act to amend the Metropolis Gas Act," 24th and 25th Vict. cap. 79.

2829. At the time of making that change had the inspection of gas meters arrived at a state of active operation?—Nothing had been done.

2830. Had any inspectors been appointed?—None for the metropolitan district.

2831. Had any steps whatever been taken until the inspection was transferred to the Metropolitan Board?—No, not till the time of the passing of this Act.

2832. At the present time, under the new system, what is the number of inspectors of gas meters?—We have now three in the metropolitan district.

2833. What is the number of districts?—Three.

2834. What is the amount of their salary?—200*l.* a year each.

2835. Is that the whole amount?—Yes.

2836. Has each inspector one or more standards for gas meters?—Yes, each has several.

2837. What are their capacities respectively?—10 cubic feet and 5 feet. We have one measure of 1 cubic foot, but only one.

2838. Where are those standards located?—The western office for this district is in St. Ann Street, Westminster; the eastern office is in White Lion Street, Shoreditch; and the southern office is in Southwark Street.

2839. Is each of those offices furnished with 10 feet and 5 feet measures?—Yes, with several.

2840. Is it necessary to have several for despatch of business?—Yes.

2841. Does each inspector perform the work of examination himself?—Yes, he is obliged to do it. He has several assistants for carrying the meters in and out, and so forth, but the inspection is made by himself, and the entries are all obliged to be made by him in a book. Each separate entry of the testing of a meter must be made by him.

2842. Do those inspections occupy his whole time?—Yes, his whole time, with a very trifling exception. Recently, since the passage of the petroleum Acts, the Board have directed that in cases where the test is to be applied in the metropolitan district those three inspectors shall apply it; but it is a very trifling matter, and does not occupy more than about a few hours a week.

2843. Are the dry meters and the wet meters equally inspected?—Yes, both.

2844. Are your offices commodious and well adapted to the purpose?—Yes, I think so. They were specially designed, and built for the purpose on my design. One of them is just at the back of this place and may be seen at any time.

2845. Do the inspectors act under written instructions?—No. There have been one or two orders passed by the Board; for example, that they shall attend from 9 till 5, and that they shall give security, but no further written instructions. The register, when drawn up by me, was submitted to and approved by the Board; and they are to adhere to that form, so that practically they have definite instructions, though not precisely what you would call written instructions.

2845*a*. Are you able to state the number of gas meters tested and stamped for any number of years?—I have made out a summary of the whole number since the commencement, and it is as follows:—

"METROPOLITAN BOARD OF WORKS.

SUMMARY of METERS RECEIVED from the year 1861 to 1868 inclusive.

Year ending.	Meters received.
Christmas 1861	2,603
,, 1862	28,425
,, 1863	29,853
,, 1864	27,134
,, 1865	34,300
,, 1866	38,298
,, 1867	42,896
,, 1868	49,762
Total	253,271."

2846. Are those new meters or are some of them re-examinations?—Both the new and the old are included in that return.

2847. Have you any idea of the proportion of each description?—No; we do not distinguish them. If a meter comes to be tested, it is entered as a meter tested; we do not distinguish the new from the old.

2848. In the verification are the gas-measuring standards used?—Yes; they are stamped at this office, and we cannot use them till the Standards Office has approved them and stamped them.

2849. There is a fixed fee for each verification, is there not?—Yes.

2850. Can you state what the fees have amounted to?—Yes. The fees for the same period are as follows:—

"METROPOLITAN BOARD OF WORKS.

SUMS RECEIVED as FEES for TESTING GAS METERS.

	£	*s.*	*d.*
1861–2	563	9	0
1862–3	976	7	0
1863–4	914	4	0
1864–5	1,026	13	0
1865–6	1,281	9	0
1866–7	1,436	8	0
1867–8	1,411	12	0
1868–9	1,862	19	0
	£9,473	1	0

Spring Gardens, 28th July 1869."

2851. What is the fee for each meter?—It varies with the size, and is defined by the Sale of Gas Act, the 22nd and 23rd Victoria, Chapter 66, Section 19. "The fees for examination, comparison, and testing, "with or without stamping, meters shall be sixpence "for each meter delivering a cubic foot of gas in "four or more revolutions or complete repetitions of "the action of the meter, and one shilling for each "meter delivering a cubic foot of gas by any less

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"number of revolutions or complete actions, or one "revolution or complete action; and for each meter "delivering more than one cubic foot of gas by one "revolution or complete action, the further sum of "one shilling for every cubic foot of gas delivered at "one revolution or complete action beyond the first "cubic foot"; so that each meter will register what it passes, and you put the fee against it in accordance with that section.

2852. Can you state the total disbursements connected with your office including salaries and emoluments of all kinds, and the expenses of providing standards, and so on?—Yes. I have prepared a return which is as follows:—

PAYMENTS in respect of EXPENSES under SALE OF GAS ACTS.

	£	s.	d.	£	s.	d.
Law and Parliamentary Expenses:—						
1861–2	107	17	8			
1862–3	87	5	1			
1863–4	7	7	0			
				202	9	9
Buildings for Testing Houses:—						
1861–2	1,432	16	2			
1862–3	4,336	16	9			
1863–4	1,832	13	11			
1864–5	966	19	10			
1865–6	500	12	5			
				9,069	19	1
Gas Holders and Instruments:—						
1861–2	285	0	0			
1862–3	1,159	9	8			
1863–4	500	5	6			
1864–5	70	3	0			
				2,014	18	2
Gas Fitings:—						
1862–3	885	14	5			
1863–4	197	0	0			
1864–5	403	18	0			
				1,486	12	5
Coals, Gas, Water, Taxes, Insurance, &c.:—						
1862–3	256	17	10			
1863–4	222	3	7			
1864–5	284	7	5			
1865–6	505	18	2			
1866–7	158	13	5			
1867–8	298	13	10			
1868–9	391	17	2			
				2,118	11	5
Salaries, Wages, &c. &c.:—						
1861–2	656	16	11			
1862–3	1,669	16	8			
1863–4	1,420	3	10			
1864–5	1,274	19	10			
1865–6	1,161	15	0			
1866–7	1,114	0	0			
1867–8	1,095	4	3			
1868–9	1,112	17	3			
				9,505	13	9
Incidents:—						
1861–2	11	4	1			
1862–3	138	8	0			
1863–4	108	13	6			
1864–5	76	7	1			
1865–6	13	17	9			
1866–7	409	8	4			
1867–8	148	7	4			
1868–9	83	16	7			
				990	2	8
				£25,388	7	3

2853. What are the gas fittings?—Those are for laying on the gas. The gasholders are separate and distinct. We have to put each holder in its place, and to bring the gas up to it from the main, and to provide a great number of gas fittings.

2854. You use gas for testing, do you not?—Yes.

2855. Are many of the gas meters rejected which are brought to you to be tested?—On an average about 10 per cent. It varies; some weeks they come better to test, and others not so well; but the average of rejection is about 10 per cent.

2856. Are you able to say whether that average varies in the different classes of meters, the dry and the wet for instance?—No. Those recently made come much better to the test than the old meters which are sometimes brought to us. But with regard to the dry and the wet, we do not observe any notable distinction between the different descriptions of meters.

2857. When you reject a meter what happens?—It goes back to the maker and he alters it, and sends it to us to test again, paying a fee each time it is tested.

2858. Is there a place provided on the meter which admits of a stamp?—Yes, there is, by a provision in the Act.

2859. Generally speaking, how has the system worked?—I think it has worked very well indeed. I may state that although at first there was some little difficulty and some little opposition to the Board's action, yet during the last three or four years we have worked most smoothly and harmoniously. I have had meter makers come to me and consult me with reference to details and suggestions which I have been able to make to them, and sometimes they have made suggestions to us.

2860. Does it appear to you with regard to wet meters that there is adequate security for the maintenance of the water at the right level?—That is a difficulty certainly in theory, but practically we do not find that there is the difficulty that you would suppose theoretically. Doubtless it is possible for a fraudulent consumer to tamper with the water line, but we do not hear very much of that being done. What confirms me in the belief that it is not frequently done is, the fact of the very few cases in which when disputed meters have been brought to us, they have asked to have the front of the meter taken off so as to see what has been the water line.

2861. Do you conceive that the meters have been improved under the action of the inspecting system?—There is no question of the meters having been improved. Perhaps it would be hardly fair for us to take the whole credit of it, inasmuch as so many mechanical improvements have taken place during the last 10 years in every department. But I cannot help thinking that our test has had a considerable effect in improving the construction of meters.

2862. There is an allowance, is there not, of two per cent. in favour of the seller of gas, and three per cent. in favour of the buyer?—Yes, that is so under the Act.

2863. Do those allowances appear to you well adapted to the circumstances of the case?—They have worked very well indeed. I may state in favour of the meter makers that it is very rarely that a meter comes before us from any respectable maker which comes up to the tolerance, generally speaking they are made more accurate than that, either way. Of course, we have no power to reject a meter if it is within that tolerance, but very many come to the test absolutely correct.

2864. Your observation of the system is probably confined to the metropolitan district?—I have no authority or official knowledge beyond the metropolitan district.

2865. But have you a general knowledge of the working of the system elsewhere?—Yes, I hear a great deal, of course, but I have no official knowledge.

2866. Does not what you hear from other authorized persons confirm your own judgment?—Yes.

2867. Is the system found to work as well in other places?—I have not had an opportunity of hearing much about other places, for the reason that it is so little used in other places; there are very few places where the Act has been put in force.

2868. Have you reason to believe that the gas meters which you have tested are principally used in the district, or that they are made for exportation?—They are principally used in the district, but a great many have been tested which are used beyond the metropolitan district. I need hardly say that it is the habit in the county of Middlesex and the county of Surrey beyond our district, to have them tested at

our offices and they would be supplied by the same makers as those who supply the metropolitan district proper.

2869. Have you any knowledge about such cities as Manchester, whether meters are made principally in the localities, or are furnished from London?—A good many go down from London to the large towns, but places like Manchester and Birmingham manufacture meters extensively.

2870. The inspection of gas meters in London is compulsory, is it not?—Yes.

2871. But it is not compulsory in all parts of the kingdom, I believe?—I certainly should have read the Act as enacting that the inspection should be compulsory, but by its not being put in force, of course, it is clear that I must have misapprehended the scope of the Act. I am not a lawyer, but certainly reading the Acts, I should have concluded that it would be compulsory.

2872. (*The Warden of the Standards.*) Is there not this distinction, that there are certain enactments of the General Act of 1859, which are compulsory upon the whole of the kingdom, but that under the amending Act of 1860 it is made optional with the counties whether they shall adopt the machinery for enforcing the several legal provisions?—Yes, I think that very likely is the legal distinction between the enacting powers of the two Acts.

2873. (*Lord Colchester.*) Do you think that the metropolis is the only place which has availed itself of the machinery to enforce the Act?—Glasgow and Edinburgh, and I think Manchester and some other places have adopted the Act of 1859, but I believe that only one of the counties has done so, and that is Gloucestershire.

2874. (*Chairman.*) Should you think it desirable that the separation of inspection of gas meters from the inspection of weights and measures should be maintained, or might they be united under one office?—There is no difficulty whatever in uniting them; I think, in point of fact, the duties of inspectors under the Sale of Gas Act are precisely the same as the duties of inspectors under the Weights and Measures Acts, namely, to ascertain that certain given measures hold certain given quantities.

2875. In the metropolitan district the inspection of gas meters is under one body, the Metropolitan Board of Works, and the inspection of weights and measures is under several local bodies?—Yes, it is so.

2876. Does there appear to be any adequate reason for that characteristic distinction?—No; I think on the contrary, there is great inconvenience: I think it a great advantage that the Sale of Gas Act is carried out in the metropolis by one body, because you have one uniform system of testing employed by all the three inspectors.

2877. Does it appear to you objectionable that a special department of the metropolitan police should be employed upon this inspection?—I see no difficulty in the police carrying out those functions under the Sale of Gas Act, or the Weights and Measures Act, which are especially the duties of such a body; that is to say, the detecting of fraud and the detection and seizure of false weights and measures. The police obviously are not possessed of the same machinery that we possess for the purpose of the Sale of Gas Act, and which would be necessary for carrying out similar provisions of the Weights and Measures Acts, but for bringing measures to the testing office, and for apprehending offenders, and so forth, I think it is obvious that they have an organization more convenient for the purpose than anyone else would have.

2878. Supposing a complaint is made of any gas meter, and a trial is made and it is found defective, does any fine follow?—No. The manner in which those diputes take place is generally as between the consumer and the gas companies. The Sale of Gas Act refers to a special matter, namely, the sale of gas, and that sale is effected between two well-known parties, the consumer and the gas company, and one or other is affected by any fraud. Assuming the consumer to be fraudulent, the gas company, of course, compel him to pay up the utmost that he can be shown by any possibility to have consumed; on the other hand, supposing the company to have made too heavy a charge, the consumer has power under this Act of striking off a certain proportion of their bill.

2879. But there is nothing in the nature of a penalty?—No, there is no penalty on the company for any fraud; at least it is not a fraud on the part of the company, it is not a term which I could fairly use; it would be an error, or a mistake, or a laxity.

2880. (*The Warden of the Standards.*) In fact no fine has been imposed through the medium of the inspector of gas meters?—No.

2881. But where there is manifest fraud against the gas company, the practise is for them to indict the offender criminally, is it not?—Quite so; but in case the company overcharge, a deduction is made, and the consumer can compel a deduction.

2882. You are, of course, aware that whilst it was made illegal by the Acts of 1859 and 1860 to fix for use any meter not duly stamped, after the 31st of October 1861, there exists a similar provision that no unstamped meter shall be used after the 13th of of October 1871?—That is so.

2883. Do you anticipate that the last provision will materially add to the duties and labours of inspectors of gas meters after the 13th of October, 1871?—I think not. It will add to them, but not very materially, for the reason that many companies have anticipated the operation of that section of the Act. They have taken down the meters within their district, and already brought them to the test in anticipation of the operation of that section.

2884. Do you see how this provision can be generally carried out throughout the kingdom unless inspectors of gas meters are appointed in every locality in the same manner as inspectors of weights and measures are now appointed?—That would be absolutely necessary to carry out the Sale of Gas Act.

2885. Do you think it would be expedient generally to impose the duty of inspection of gas meters on the inspectors of weights and measures?—They could very easily be taught the duty; there is no difficulty in teaching the duty of inspection.

2886. Is the Metropolitan District of Police the same as that of the district under the authority of the Metropolitan Board of Works?—No. The district of the Metropolitan Board of Works is much smaller than the police district. The Metropolitan Board of Works district is the Registrar-General's district. The police district extends on an average 15 miles round London.

2887. (*Lord Colchester.*) Then your district does not include the whole of the county of Middlesex?—No.

2888. Has the Act been adopted in parts of Middlesex which are not in your district?—No.

2889. (*The Warden of the Standards.*) Do you know whether the metropolitan district extends over as many counties, though not to the same extent, as the police district?—No, I think there are some counties which are not within the metropolitan district. I think the police district extends into Hertfordshire, which is not at all comprised within the metropolitan district. The metropolitan district comprises parts of the counties of Middlesex, Kent, and Surrey.

2890. (*Lord Colchester.*) Essex is within the police district, is it not?—Yes, and a certain part of Hertfordshire.

2891. Where is the centre taken from?—Scotland yard.

2892 (*The Warden of the Standards.*) Have you ever considered whether it would be expedient to transfer the authority over the inspection of weights and measures to the Metropolitan Board of Works, in the same way as the inspection of gas meters has been transferred?—I think it is so obviously the

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proper body that I do not think any doubt could arise upon the subject.

2893. Do you consider that such authority over the local inspection could more fitly be entrusted to the local authorities, or to a more central authority like the Metropolitan Board of Works?—It is because the latter is a more central authority that I think no other body would offer the same facilities for carrying out a general measure of legislation upon the subject.

2894. The Metropolitan Board of Works defray all expenditure of this kind out of a common fund, do they not?—They do.

2895. In that respect would the authority over the inspection of weights and measures be more conveniently transferred to the Metropolitan Board of Works?—Yes, much more; because of course the expenses would be equally assessed over every portion of the metropolis.

2896. Have you heard of any cases of fraud in the use of gas meters which have been detected through the inspectors of gas meters?—A few cases of the kind have come to our knowledge.

2897. What is done in those cases?—We always report to the gas company what we find as the result of testing any given meter, and the company then proceed upon the information which they receive from us.

2898. As a matter of fact, is it not the special duty of the inspectors of the several gas companies to see that no frauds are committed upon them by means of the gas meters that are used?—Quite so; it is clearly their interest and of course their duty.

2899. As to the denominations of gas-measuring standards now established of 10 cubic feet, 5 cubic feet, and 1 cubic foot, are those denominations found to be practically convenient and which are most used?—One cubic foot we very rarely use, 5 cubic feet we use for the pressure test, but the real stress of the work is done by the 10 feet holders. Just now, the three inspectors and myself are discussing the best design for a moveable gas holder for the purpose of testing those large meters which cannot be conveniently removed and brought round to our office; and inasmuch as those require a very large quantity of gas to be passed, it has occurred to us that it would be advisable to have a holder of greater cubic capacity than 10 feet; but we have some doubts as to whether, if we designed such a holder, you would stamp it at this office. We are discussing that question first of all, to see whether we can design a meter of certain convenient dimensions for the work; and then, when we have got this design, we are going to submit it to you to ascertain whether you will feel yourselves justified in stamping it under the powers which you exercise under the Sale of Gas Act.

2900. Are you not aware that by the present law and practice we can verify only those denominations for which there are legalized standards? But one of the matters referred to this Commission is to consider and report whether, in our opinion, any additions to the number of standards are requisite, therefore in that point of view we should be glad to have an opinion from you whether, according to your experience, it would be expedient that any larger denomination than a 10-feet gas-measuring standard should be established by law?—I think it would be very desirable that the Standards Office should have the power to stamp measures of a larger denomination than 10 feet.

2901. As we must have the capacity determined, we ought to know the exact capacity that would be most convenient for the public?—I think that a 50 cubic feet holder would be desirable. The difficulty that has occurred to me in designing a 50-feet holder is, that at present we should have no power to use it, because it must be a copy of your holder here. There would be no mechanical or practical difficulty about it, it is merely a legal difficulty.

2902. As to the periodical re-verification of gas measuring standards, at present there is no legal provision rendering that compulsory, is there?—None.

2903. Do you consider that it would be expedient to make such a provision, similar to that now existing with regard to weights and measures which are required to be periodically re-verified?—I think it is obvious. You cannot suppose that an instrument like our ordinary gas holders will go on for all eternity without requiring re-verification. But practically we test them every now and then by our standard cubic foot measure, and we have not found any very great variation in them. Still if on testing any one instrument and finding that some slight variation might have taken place in a few years, it might be convenient, and it might be a desirable power for you to possess, to call upon them to be sent once in 10 or 15 years for re-verification.

2904. As a matter of fact, sufficient time has hardly elapsed to enable you to judge of it?—No, it is not 10 years since the Act passed.

2905. (*Professor Miller.*) I suppose an alteration might take place from bruises on the outside?—Yes; and I think it is possible that corrosion might a little affect them; we are very careful to keep them painted.

2906. (*The Warden of the Standards.*) You are aware, no doubt, of a Bill which has been before Parliament this session for transferring the duties of the inspection of petroleum from the inspectors of weights and measures to other persons to be appointed by the Metropolitan Board of Works?—Yes, such a Bill has been introduced; but I understood that it was to be withdrawn, or had been withdrawn in consequence of the late period of the session.

2907. Is there any other information upon this subject which you think it would be desirable for the Commission to have before them?—I think that after seeing the offices that we have established, and in the event of your recommending the transfer of the power of superintending the inspection of weights and measures to the Metropolitan Board of Works, the Commission might report possibly as to the desirability of giving us the power of providing offices and obtaining sites for the purpose, in the same manner as we have provided those offices for carrying out the Sale of Gas Act. For we have had considerable difficulty in obtaining suitable premises. There were certain requisite provisions, such as the necessity for a level basis, and the absence of tremor, and also for attaining an equable temperature, which we found very difficult to comply with, by taking an ordinary house or temporary premises; therefore the Board directed me to obtain a suitable site, and to construct proper offices for that purpose. Assuming the Board to be invested with similar powers with regard to weights and measures, I think it would be desirable that the Commission should recommend that in any Act for that purpose similar powers should be given to the Board to obtain and construct proper offices as well as suitable apparatus.

2908. It would be expedient, would it not, that the Commission should inspect one of your offices?—I should be happy indeed if they would permit me to take them there.

2909. Are you aware of any of the offices that are now used by the inspectors of weights and measures?—No; I have not seen any of them.

2910. Does it not require a certain amount of knowledge and experience to see that such offices are fitted up with all proper conveniences?—Quite so.

2911. Has the Metropolitan Board of Works greater power generally in that respect than the local authorities have?—Except the magistrates, they are the only general body that has taxing powers; but then, as I explained, the magistrates for the metropolis are divided among three counties.

2912. (*Professor Miller.*) Have you observed whether the dry meter gets out of order sooner than the other?—No, we do not find that the case.

2913. It has been asserted that the friction part in a short time becomes stiff and does not give a true indication?—We have not found it so in those dry meters that have been taken down and brought to us

for retesting. Each of the two descriptions of meters possesses certain disadvantages, and each possesses certain advantages peculiar to itself; but as regards our tests we have not observed any marked difference between their action.

2914. (*Lord Colchester.*) I think you stated that the tolerance varies five per cent.?—Yes.

2915. And that the sellers had never produced a meter that went to the extent of two per cent.?—No; the seller and the consumer in this case mean the ordinary consumer, that is to say, the general public, and the gas companies; but I was speaking of the makers of meters; they are different parties altogether.

2916. You stated, did you not, that you had never found over two per cent. in favour of the seller?—No, I spoke of the meters that come to the test; although we cannot reject them if they come within that tolerance, nevertheless it scarcely ever happens that any respectable makers send a meter to us that is only just within the allowance on either side.

2917. Do you think that allowance greater than is required?—I think it is.

2918. How much would you propose to reduce it?—I think that a meter might be made fairly one per cent. in favour of the seller and two per cent. in favour of the buyer, so as to make the total variation three per cent. instead of five.

2919. The testing of the meter is entirely in different hands from the testing of the gas itself?—Yes, quite so.

2920. The Act of Parliament which requires gas to be of a certain standard is administered by different persons, is it not?—Yes.

2921. By whom is it administered?—In the first instance, rules for determining the purity of gas are laid down by the gas referees, who are appointed by the Home Office for the metropolis; and the gas examiner, the man who carries out the directions of the gas referees, is appointed by the Board of Works for their district, and in the City of London by the Corporation of the City of London.

2922. (*The Warden of the Standards.*) Do you think that there would be any advantage in the transfer of authority over the inspection of weights and measures to the Metropolitan Board of Works, looking at them as a body more independent of local influences?—I think there would be a great advantage in a body like the Metropolitan Board of Works having this particular duty, because they are elected by the whole metropolis, and have no local favour or affection of any kind. They represent solely the metropolis, and are not influenced by the feelings of any particular locality.

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2923. Are not several of the members of the Metropolitan Board in the same position as the members of the vestries, in fact, are not several of them members of different vestries in the metropolis?—The constituencies are twofold. The larger vestries, such as Paddington, St. James' Westminster, and Marylebone return their members directly; in the smaller vestries, as in the case of St. Margaret's, they each elect a District Board, and those District Boards elect the members to our body, so that they undergo a double election.

2924. Are there any members of the Metropolitan Board who are in the position of having weights and measures to be inspected?—I do not think that there is anybody on our Board who uses weights and measures; there are two or three wholesale merchants, and I do not know how far they might use them, but I think not.

2925. Practically, would any of the members of the Board be individually engaged in any matters relating to the inspection of weights and measures?—None; except that we have half a dozen county magistrates on the Board, and in that way they have certain duties to perform, but no further than that.

2926. They would be engaged judicially in cases that might be brought before them, but would not directly interfere in the inspection?—No, none would be engaged in the direct inspection.

2927. In fact, the only matter in which the inspection of gas meters now comes before the Board is, first, in the appointment of inspectors, and next in the revision of the receipts and expenditure?—That is so.

2928. (*Chairman.*) Does the examination of the quality of the gas come before you in any way?—By the recent Act the Metropolitan Board of Works has the appointment of gas examiners for those companies which are placed under inspection. There are only two companies which have been so placed under inspection, and as far as those two companies are concerned the Board have the appointment of the examiner.

2929. (*Professor Miller.*) Are you aware whether there has been great difficulty in obtaining standard candles?—There has.

2930. Are you aware whether the standard light invented by Mr. Crookes has been employed?—I have had several conversations with Mr. Crookes on that subject, but I think I may say that up to last week it had not been employed.

The witness withdrew, and the Commission, accompanied by Mr. Cresy, then inspected the office of the Inspector of Gas Meters in St. Ann Street, Westminster.

Adjourned to Wednesday, August 11, at 11 a.m.

Wednesday, 11th August 1869.

PRESENT:

THE ASTRONOMER ROYAL IN THE CHAIR.

PROFESSOR W. H. MILLER, F.R.S. | THE WARDEN OF THE STANDARDS.

JOHN FISH POWNALL, ESQ., examined.

2931. (*Chairman.*) You are chairman of the Board of Magistrates in the Holborn Special Sessional Division of the county of Middlesex, are you not?—Yes.

2932. How long have you been in that position?—For about 20 years, I have taken an active part in magisterial duty.

2933. During that time you have doubtless had extensive experience of the working of the laws relating to weights and measures?—Certainly. We have about eight sessions a year, and I suppose we generally have from 20 to 25 cases each session; that would give us from 160 to 200 cases in every year.

2934. In asking for your evidence it is an important object of the Commission to ascertain your opinion on the general efficiency of the present state of the law, and with regard to any alterations which may be desirable to be effected in it. Of course the subject is a wide one, and must be broken up into different parts; first, with reference to the appointment of inspectors, what is the practice at present in the Holborn district?—The local justices have no jurisdiction with regard to that. The inspectors are altogether appointed at the Quarter Sessions.

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2935. That is to say the Quarter Sessions for the

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county of Middlesex?—Yes. The county is divided into four divisions of inspection of weights and measures, and there are four inspectors, who exercise the duties both of what you would term verifiers and inspectors also. In what I have to say I wish to refer solely to what I know practically of the divisional work, because there is a very great difference between those parts of the county which are without the metropolitan police division, and those parts which are within, and any remarks that I may make I wish to apply solely to the district within the metropolitan police division.

2936. Is the division to which your jurisdiction applies entirely separate from the parish of St. Pancras and other parishes which have special Acts of Parliament?—It is. Of course the county magistrates' jurisdiction is over the whole county. I presume you mean in our petty sessional division.

2937. The appointment of inspectors, as I understand, is made by the general board of magistrates in Quarter Sessions?—Yes.

2938. When that appointment has been made, is there any further power exercised over those inspectors, either on the part of the general board for the county or under the divisional board?—I think I am right in saying that they are annually re-appointed, and if any complaint was made, of course it would be taken into consideration on the re-appointment. I think it is under the provisions of the present law that they are re-appointed every year; that is my impression. At all events I believe that is the practice.

2939. Do the magistrates take any active part in controlling the proceedings of the inspectors, or in controlling the receipts of money by them, and the disbursements connected with the inspection?—I believe not; except by receiving and verifying annual accounts of the fees payable to them, and of the penalties.

2940. Excluding the special case of the City of London, is not the inspection of weights and measures throughout the county of Middlesex at the present time partly under the control of the county magistrates, and partly of the vestries of the four parishes of Paddington, St. Marylebone, St. Pancras, and St. Mary's, Islington, and of the local authorities in the city of Westminster, and the Tower district?—Yes, I believe so.

2941. Has anything come before you which would induce you to think that it is expedient to place the inspection in all those districts under one general authority?—I should say that I have no information to enable me to answer the question. I have no doubt in my own mind that it would be much better that they should all be assimilated; but I do not like to state anything upon which I have no absolute information, and I have none which would enable me to give an opinion upon this point.

2942. We have information that in some of the parishes, St. Pancras, for instance, which have local Acts, there is a system which goes by the name of annoyance juries?—I have no doubt myself that they are simply that and nothing else.

2943. Is there anything of that kind in the Holborn district?—No; we have none of them.

2944. At any rate you would not wish to have annoyance juries in your district?—I think it would be perfectly useless. That seems to me as a matter of course, because such men cannot understand how to inspect weights and measures accurately enough. A jury of a number of people taken by chance, as it were, and being obliged to serve under penalties, as I believe is the case, cannot understand in most cases how to test weights and measures. I should not know how to do it myself, and I think I should have as good a notion as many of them.

2945. Upon the whole, as far as you give an opinion upon a matter in which you have not had actual experience in your own district, you think that it would be desirable to abolish that system?—Certainly.

2946. In various parts of the country, in counties and other places, the inspection of weights and measures has been placed in the hands of the police?—Yes.

2947. Have you any means of forming an opinion as to whether that is an advantageous system or not?—Upon that point, I feel very strongly that an exception should be made from that system for the metropolis. In other parts of England the police are under the jurisdiction of the justices, but within the metropolitan division they have no control over them. We constantly find it difficult to get the information that we require from the police, even for such purposes as when we have to make inquiries on the characters of persons applying for licensed victuallers' licences. We have had to write several times from our petty sessions to the Chief Commissioner of Police, because we were unable to get reports presented to us, and unless the jurisdiction of hearing and adjudicating on weights and measures' cases was withdrawn from the county magistracy, I think that we should have great difficulty with the metropolitan police. But there is, to my mind, a much more serious reason against appointing the police as inspectors of weights and measures. In the metropolis, two-thirds, if not three-fourths, of the cases that come before the magistrates are cases against licensed victuallers for defective pots. That is the case at least in our Division. I think that it is most unadvisable that the police should have more to do in the way of interference with public houses than is absolutely necessary. It is extremely difficult to get proper evidence from the police on matters connected with public houses, unless it comes from quite the superior officers; and I think it would be extremely unadvisable that any portion of the police should have, in the discharge of their duty, to be so constantly entering public houses, not for the purpose of quelling disturbances or for ordinary police duties, such as shutting up at proper hours, and so forth; but for the continual inspection of the pots, which is generally done in the earlier parts of the day. Also, if the police are appointed inspectors of weights and measures, it would be necessary, I presume, that there should be a special number of police told off for that particular purpose. The effect of that would simply be to have the inspectors appointed by the Chief Commissioners of Police instead of by the magistrates. Again, my impression is that the police would be useless as inspectors unless they appeared out of uniform, particularly for all hucksters' cases. I have often been told by our inspector, Mr. Morrison, that throughout the length of Leather Lane it is almost impossible for him to get more than one or two cases at a time. He has seen, he says, how the word is passed down, and all false weights and measures have disappeared before he can get at above one or two of them. There must always be two persons together for the inspection, that is to say, the inspector must have a witness with him, and if two policemen in uniform were seen coming, I believe that if they got hold of one case it would be pretty nearly as much as they would be likely to have. And especially for the time that they are most of all required, that is on Saturday evenings, it would be objectionable to have the police mixed up in that duty, at the same time when they were also wanted for other ordinary police duties.

2948. You have already alluded to one subject upon which the Commission were desirous of obtaining your opinion, that is to say, whether a certain number of the police could be specially appropriated to those duties?—I presume that that would be a necessity, because an ordinary policeman or even the ordinary inspectors would be perfectly incompetent to test weights and measures with accuracy. My own impression is that they have quite as much to do now as it is at all fit they should have, and my own feeling is against the police interfering in commercial matters more than is absolutely necessary. I think it is much better that the police should be kept for what may be strictly called police duties, and not be interfering in what may be called civilian duties. I may also remark that I believe that there is at present the greatest confidence felt in the accuracy

of the present inspectors. I do not think that in one case in twenty which come before us, there is the slightest doubt as to whether the weight or measure is defective, when so declared by the inspector. I believe that no such confidence would be felt if the inspection were exercised by the police, and that persons complained against would always be requiring the weights and measures to be re-tested; they would not be satisfied as they are now, when they believe in the accuracy of the present inspectors. We now hardly ever find any proof of deficiency required, except where the party does not appear, and only the wife or daughter, perhaps, appears; then the case must be strictly proved before a conviction can be enforced.

2949. You mentioned the ease and rapidity with which false weights and measures would be concealed at the appearance of an inspector of the class of the police; is there not almost the same facility under the present system?—I allow that there is considerable facility, but I say that the two policemen would very soon be known by their faces, because there could not be a very large department to be organized. I suppose they would not want a dozen police told off for a county; at any rate their faces would very soon be known, and they would be more conspicuous than the present inspector and his man are, by having their uniform on. I think, therefore, that they would be more easily seen, and everything wrong would more quickly disappear. At the same time I confess that I am one of those who feel very great repugnance to the police executing their duties in plain clothes, except where the ends of justice make it absolutely necessary that they should do so.

2950. You have stated, and with great clearness, your opinion upon this point, are you able to say whether they are also entertained by your brother magistrates?—I am sorry to say that just at this time of year so many of them are out of town, and I myself happen to have been so excessively busy during the last week, that I have not been able to communicate with many of them. I have communicated with a few, and I have found that they generally agree with me in my ideas; and I may say that I have talked the matter over with my father, who is the chairman of the Quarter Sessions, although he has not lately taken an active part in the local jurisdiction, but his ideas upon the subject quite agree with mine.

2951. You have spoken of defective pots of licensed victuallers, do you know how far steps are taken to keep them correct?—As to public house pots, owing to the softness of the metal, and the way they are tossed about on the counter and on the ground, the pots are knocked about so much, that unless they are blocked out almost daily they are continually deficient. There are a great many intentionally so, but a very large number of the defects are accidental. We are obliged of course to fine in all cases, because the public suffer just the same from both classes of defects.

2952. With respect to the inspection of gas meters, it appears that considerable authority has been transferred from the county magistrates to the Metropolitan Board of Works; can you give any explanation upon this point?—I am sorry to say that the economy of our quarter sessions made us decline to carry out what we thought would saddle the county with a very large expense. I think the inspection of gas meters would have been very much better retained by the county authorities; but the Quarter Sessions thought that it would involve a very large expense, and that they had no business to saddle the whole county with it, as the inspection would be almost exclusively limited to the metropolitan area. They consequently thought that the Metropolitan Board of Works was perhaps the more fit body, and therefore they declined the jurisdiction. Our county rate extends over a large part of the county as to which gas inspection has nothing to do. It was expected at the time that a large expense would have been incurred, and it was considered that it would be making a country district, far away from any gas, pay for the accommodation of the metropolis. I believe it was that which influenced a large number of the justices in the decision which they came to.

2953. Has the Metropolitan Board of Works any magisterial power?—I think I am right in saying, none. There are many of the members of the Board who are on the Middlesex bench, but they have not in themselves any magisterial power.

2954. At present are not the duties of comparing and stamping weights and measures, and the duty of inspecting, in the hands of the same persons?—Yes.

2955. Should you conceive that there would be any advantage in separating those duties?—I really feel hardly competent to give an opinion. I see a disadvantage in separating them in one respect, that it is sometimes convenient to be able to ask the inspector, on his making a complaint, some practical questions with regard to the proceedings at the stamping office; for instance, whether the parties complained of have been lately before him to have new or corrected weights and measures compared and stamped. In that way we can get to a certain degree at the *bona fides* of the parties, whether it is accidental that the weights are deficient, or whether it is wilful negligence; but beyond that, I do not see that there is much advantage in the suggested system.

2956. Your opinion is not decided upon that point?—Not at all.

2957. It appears that in 1835, Mr. Rotch, then Chairman of the Middlesex Quarter Sessions, stated, before a Committee of the House of Commons, that there was great reluctance on the part of the magistrates, to assist in establishing the system then traced out for the inspection of weights and measures, and a great spirit of opposition against carrying out the Act, are you aware of that circumstance?—I remember Mr. Rotch as a friend, but I do not remember him on the bench; it was before my time.

2958. Have you reason to think that there is any objection of that kind felt by the magistrates now?—Not the slightest in the world.

2959. Do you think that practically they are sensible of the importance of carrying out the Weights and Measures Acts?—Yes. I have never found or heard the slightest unwillingness expressed to carry the Acts out to the fullest extent.

2960. With respect to the inspection of gas meters, you stated, did you not, that the objection was only with regard to the point of the distribution of the expense?—I believe that the sole objection was on the ground of the expense that it was expected to entail on the county. I am not quite certain that I was present on the county day when the subject was discussed, but that is my impression of what took place.

2961. (*Professor Miller.*) Is the actual expense very much less than was anticipated?—I really do not know, but I believe that the amount of fees received has been found to be very much larger than was expected.

2962. Are the inspectors in Middlesex paid entirely by salary, or do they receive a portion of the penalties?—They receive a portion of the penalties in addition to a fixed salary. The salary of one has recently been raised. One of our officers has 150*l.* a year. Mr. Morrison has given you his evidence, and, I have no doubt, has given information upon this point more exactly than I can give it. On the subject of fines, I might mention that there is to my mind some disadvantage in a part of the remuneration being in fines, and on this ground, that the inspection is, perhaps, as much wanted with regard to hucksters as anywhere; but if we inflict a reasonably severe fine for the frauds that we find amongst them, it is requisite to accompany it with the alternative of a committal for seven or 14 days in default, and the committal generally

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takes effect. In such a case the inspector gets no moiety of his fine, although he has had himself to pay the expense of his assistant and of a cart to bring the weights, measures, and scales before the justices, and in addition very likely ten times the trouble that he has in an ordinary case to find out the person on whom to serve the summons. Therefore, by paying him in part by fines, the tendency is really to make him rather look after the cases where he is sure that the fine will be paid, in fact, to the more responsible persons. We constantly have some very bad cases, perhaps women hawking fruit or something of that sort about the street. I remember a little while ago we found a woman whose 1 lb. weight was an iron covering filled with wood, and it weighed only just over half a pound. We thought that possibly she might have money, and we put the fine, I think, at 2*l.*; but it was quite impossible to get it. She asked for time to pay it, and my impression is that in this case I had afterwards to sign a committal. The result of all such committals is that the inspector gets nothing for his exertions. It is, however, necessary to commit in order to prevent frauds. It is true that we give them a little time to pay, and they say they will pay, and, perhaps, they do pay a few shillings; but it very often happens that they cannot be found for the rest of the penalty, or indeed for the committal either.

2963. (*Chairman.*) With regard to persons who are in a more responsible position, in the possession of a larger amount of property than those which you have just indicated, have you any reason to think that there is collusion in any case between the inspector and the tradesman?—I have never had any suspicion of it myself.

2964. In carrying out the process of trying and stamping, have any precise regulations been laid down by the magistrates, or are they cognisant of the exact process?—For myself I can say that I am not aware of any, and I am not aware that there is any committee or any other inspection of the matter by the justices.

2965. Is care taken by the magistrates for the establishment of proper offices?—I believe that that has been left entirely to the inspectors, and improperly so I think.

2966. Do you mean that the offices are provided at their own expense?—Yes, I believe so.

2967. The offences against the law are judged by the magistrates in petty sessions, are they not?—Yes.

2968. Not in the police courts?—I do not think they are ever taken to the police courts. I am not aware of it if they are.

2969. In boroughs generally and in cities the mayor or chief magistrate is the presiding judge in those cases, is he not?—Yes.

2970. Is there an appeal in any case to any higher court?—I believe that there is a power of appeal to Quarter Sessions by the 35th section of the 5th and 6th Will. 4., but I do not think I have ever known a case of appeal.

2971. In the event of the inspectors becoming too old and incompetent to perform their duties, is any retiring pension allowed to them, or any superannuation of any kind?—I am not aware of any. With the number of county officers that we have, the amount of retiring pensions is such an enormous item in our county rate that we dread to take up the subject; but I do not wish to offer any opinion as to whether there ought not to be any superannuation allowance to the inspectors.

2972. Have you any fault to find with the present system with regard to the mode of bringing offenders before the magistrates?—The system pursued is as follows:—The inspector generally comes to me with certain informations which he brings for my signature. Then the parties summoned on those informations very generally attend, and the whole process is a most commonplace work. We almost always find that parties complained against are satisfied that there is incorrectness, although sometimes it is contested; in point of fact there is negligence in a great many cases for which the persons must be fined. We have occasionally had cases that we thought too trivial to notice. I have already mentioned the cases of hucksters, but it is extremely difficult, and I believe almost impossible, to keep their weights and measures correct, because you can only get hold of one or two at a time that are false or defective in a neighbourhood, and the inspection has almost all to be done late in the evening.

2973. Those people can only be brought before you by a summons?—Only by a summons. If they do not attend, then of course we can issue a warrant for their attendance.

2974. A man cannot be brought before you in any summary way; that is to say, he cannot be at once brought before you by a police officer?—No; as I mentioned, it is only now and then that we have a list of such cases brought before us. The fact is, that the police courts taking all the criminal business, we have only the more civil business, as it were, of the county.

2975. (*The Warden of the Standards.*) I hold in my hand a return just made to the House of Commons of persons convicted for short weights and measures in the metropolitan district of police during the last six months, and it appears that the Holborn division is not in the list. Were there no convictions in that division during that time?—There must have been at least 60 convictions for amounts varying from 5*l.* downwards.

2976. Have you any idea why those convictions are not set down in this return?—I have never heard anything with regard to it. I presume it must be that our clerk at the Sessions House, Clerkenwell, was never applied to on the subject of this return.

2977. Do you think it would be a good regulation to make by law that periodical returns of convictions for short weights and measures in each district should be made to the Board of Trade or to this department, in order that authentic information should be furnished from time to time to Parliament in an annual return or otherwise?—I think it would be good that a classified return should be made; but I observe in that return, there are the names given of the persons fined, and I doubt the propriety of a regulation for a name return, because those returns might be printed, and there might be an unfair imputation upon tradesmen who may have been convicted really from a slight carelessness, and it would not be fair to exhibit them as offenders in a parliamentary return. I am of opinion that a classified return would be a very good regulation, but not a name return. The Justices of Middlesex have however themselves occasionally ordered a name return of all persons fined.

2978. I see that this return is a return only of cases where the penalty was not less than 40*s.* Have you inflicted any higher penalties within the period stated?—We have had many cases over 40*s.*

2979. Can you give the Commission any idea of the proportion of cases of wilful and deliberate fraud that are brought before you out of the whole number of convictions?—I should say, speaking roughly, about eight per cent. are fraudulent, but that a great number of cases are cases of negligence more or less gross.

2980. Do you think that generally speaking there is every disposition on the part of shopkeepers to have their weights and measures correct?—Certainly, as a general rule, I believe they wish it.

2981. As to the provision of the law which does not enable an inspector to seize incorrect or defective balances, do you think that requires any alteration?—I think it would be extremely advisable that he should have the power of seizing them.

2982. Would you limit the balances to be seized where they are below a certain amount in value, say under 5*l.* value, because in many cases weighing machines are worth considerable sums?—I have never considered that question. I do not think that I have ever had a case come before me where that

has occurred. I think that now the inspector can only seize out of doors. The most defective balances that we have had, have been patched coal scoops used in selling a quarter cwt. of coals and such like.

2983. But your opinion is that it would be expedient that the inspectors should have the power of seizing balances?—I think it would be a good thing. There would be a difficulty in this way, that they must have a cart attending them to carry them off, and that would perhaps herald their presence in the neighbourhood more than is expedient.

2984. As to the costs in cases of convictions, what are the costs generally in the cases that come before you?—I believe that we have no power to give any costs whatever, and that the case is so throughout all the sessions held within the metropolitan police district, where there are police magistrates. I know costs are given at some sessions, but as far as I can make out the law, I believe them to be illegally given. It is a question which is very important to be considered. It is a great pity that we cannot charge costs in any matters in which we have jurisdiction to sit as magistrates, but as the law stands at present I believe that the magistrate's clerk cannot take costs; when, however, we sit to hear matters connected with parochial rates, and the vestry clerk attends as our clerk, then he can charge costs.

2985. Is the magistrate's clerk paid by salary or by fees?—By fees.

2986. But in those cases he gets no fees?—He gets nothing whatever.

2987. It has been represented to us as a great hardship against shopkeepers that the magistrates have not the power of dismissing any cases of defective weights and measures brought before them, and that they always fine when the case is proved. Is that your experience? Do you consider that you have not the power of dismissing any trivial case?—My impression is that if the fact is proved we must convict, and that we can only mitigate the penalty.

2988. Do you think that you ought to have the power by law to dismiss cases where you think fit?—I am not prepared to think that it would on the whole be advantageous; it is almost impossible to say that there is not some very slight degree, at any rate, of negligence, and I think that 1*s.* fine is better, in order to show that everybody must be careful to the utmost.

2989. Do you frequently impose a fine of 1*s.*?—Very seldom, because it is very seldom that the inspectors, in the exercise of their discretion, bring to us cases which are so trivial as that we should do so. In one or two very trivial cases, we have inflicted a fine of 1*s.*, and told the person summoned that we felt bound to convict as the matter was proved, but that as we thought that there was no intention of fraud, we convicted in a mitigated penalty of 1*s.*

2990. With regard to placing the inspection of weights and measures in the metropolitan police district under one authority, have you ever considered whether it would be expedient to transfer the authority to the Metropolitan Board of Works, in the same way that the inspection of gas meters has been transferred to them?—I think that the remarks which I have already made with regard to the police would equally apply, that I think it is beneficial that the inspectors should be appointed by the justices, and that the administration of the law with regard to offences should continue to be in the hands of the county magistrates; therefore I think it would be highly objectionable that the Metropolitan Board of Works should have anything to do with the inspectors. In this remark I wish to distinguish the inspectors, as such, and the verifiers, if the separation of these duties should be deemed necessary.

2991. If it were considered expedient to separate the duties of verification from the duties of inspection, in that case do you think it would be expedient to transfer the authority over verification to the Board of Works?—I see no object in it; but I do not feel confident to give any opinion upon it. I have thought it over, and I cannot really make up my mind one way or the other; I see no object in it.

2992. With regard to the offices of the inspectors of weights and measures, do you consider that you have the power under the existing law of providing proper offices for them as part of the expenses of the inspection of weights and measures?—I am not prepared to answer the question.

2993. Do you think it would be expedient that there should be an express provision of law empowering local authorities to provide proper offices for the inspection of weights and measures?—If you say "directing," instead of "empowering," I should say yes. I should like it to be ordered, but I do not like the empowering, because we should very likely feel very much in the same way as with regard to the gas inspection, whether we had a right to saddle the agricultural part of the county with a charge for the commercial part of the county.

2994. (*Chairman.*) Have you ever had a case before you of a weight or measure of other than the legal denominations?—I have had a case in a public house near Red Lion Square of a measure of one-third of a quart.

2995. And were you obliged to condemn it as illegal?—We considered that we were bound to condemn it and fine the man, although I was satisfied that it was done for the convenience of purchasers, that is to say of some workmen, and not with any idea of fraud.

2996. Have you had anything similar with regard to weights, as, for instance, a weight of $3\frac{1}{2}$ lbs.?—I do not remember such a thing.

2997. Have you any further information which you would wish to give the Commission?—I would venture to call attention to the question of extending the inspection to post offices. I had occasion one day to weigh some heavy foreign letters and packages at the West Central post office in Holborn, and I said to the clerk, "Your scales are very short;" "Oh, yes," he said, "we sent a fortnight ago to St. Martin's-le-" "Grand to say that they were both out of order." I directed Mr. Morrison, our inspector, to go and examine them, and he found both scales decidedly short. In fact, if I had not got the clerk to take the letters and packages to another scale inside and weigh them, I should have had 4*d.* to pay for each of my packets more than was proper. These post-office weights and scales are, I believe, exempt by law from examination; but I think it right to mention what happened to come under my own observation.

2998. Is there any power of testing excisemen's gauging rods?—Those do not happen to come before me in any way.

2999. It is a matter of administration of the executive government, is it not?—Yes.

3000. (*The Warden of the Standards.*) I see that in the 28th clause of the 5th and 6th of William 4. the inspectors are empowered to inspect weights and measures in all places where goods are exposed or offered for sale or to be weighed for conveyance or carriage, do you think that that excludes or includes post offices?—I think it would include post offices, but they allege that they have some special clause in some Act of Parliament which exempts them from it. I told Mr. Morrison to go and speak to them about it, because I thought it was not fair to the public. He inquired at the head office, and they said that they were exempt.

3001. Has any case come before you where there has been a doubt as to the provision of the law for seizing unstamped weights by an inspector?—I am not aware of any case of that kind having come before us, but I believe there is such a doubt. I think that power ought to be given to the inspectors to seize unstamped weights.

The witness withdrew.

SIR THOMAS TILSON examined.

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3002. (*Chairman.*) You are chairman of the Surrey Quarter Sessions, are you not?—I am.

3003. In that capacity you have important powers connected with the carrying out of the laws regarding weights and measures; the appointment of the inspectors, I believe, is made by the bench of magistrates?—The appointment of the inspectors is with the magistracy of the county.

3004. Have you had much experience of the working of the weights and measures laws?—As chairman of the Newington division, not as chairman of Quarter Sessions. I am now chairman of Quarter Sessions, and when I became chairman I resigned the chairmanship of the Newington division; but as chairman of the Newington division I had very largely to do with the subject for several years.

3005. As chairman of the Quarter Sessions do you not see the working of the laws relating to weights and measures?—Not at all.

3006. Therefore the information that you will be able to give us as to the general working of the law will be founded merely upon your experience as chairman of the Newington division?—Yes. It is one of the largest divisions in the metropolis, and one, I believe, which has been better worked with regard to weights and measures than any other.

3007. The inspectors for that division, as for others, were appointed by the bench of magistrates in Quarter Sessions, were they not?—Yes.

3008. After the inspectors were so appointed, what steps were taken by the bench of magistrates generally for ensuring that their duties were performed properly, or to what degree do they supervise the inspectors?—I should say that we judged by the results; that is to say, if the inspectors brought up a certain number of persons before us, and we did not hear of any complaints from anyone that false weights and measures were used without being detected, we considered that the inspectors had done their duty. That was the only means, so far as I am aware, that we had of finding out whether they did their duty.

3009. Was it in the power of the bench of county magistrates to remove the inspectors?—They have the power by law.

3010. Was such a power ever exercised to your knowledge?—It has never been exercised in my time.

3011. Are the inspectors appointed every year successively, or is their appointment renewed every year?—In my time there has been but one appointment made. A man of the name of Wade was inspector when I first became chairman, and he continued till his death, when two inspectors were appointed instead of one.

3012. Was, in fact, the office regarded by him as a freehold?—I think it was.

3013. What steps could the magistrates take where the inspector is too old and incompetent for his work?—Only what the Act of Parliament gives them, to remove him if they thought him incompetent; but that case has never occurred in my experience. I may say that it was very nearly occurring, because the late inspector had become rather negligent in his duties from old age and from an accident to his leg, I think.

3014. There are certain parts of the metropolitan district which, under the authority of local Acts, or otherwise, are exempt from the control of the county magistrates,—the parish of St. Pancras, and the city and the liberties of Westminster, and some others,—are there any such in Surrey?—I do not think that there is any part of Surrey exempt; I am not aware of any. I believe that our officers have jurisdiction over the whole of the county of Surrey. Of course I except the boroughs of Guildford and Kingston.

3015. The question has been extensively raised as to whether it is desirable to put the inspection throughout the metropolitan district into the hands of a department of the police; has that question come before you in such a way as that you are able to give any opinion upon it?—I cannot see any objection to it. I have thought of it since the idea has been suggested to me, and no objection has occurred to my mind.

3016. Are you aware of any faults in the administration of the law which can be traced to the present system of appointing the inspectors?—No, I am not. From the best judgment I can form the inspection has been very good indeed in the county of Surrey.

3017. Do you think that on the one hand there has been collusion with tradesmen in any cases which have come before you?—Not since the present inspectors have been appointed.

3018. And on the other hand that the inspectors have been vexatious in their proceedings?—Certainly not; I believe that they have been most admirable officers.

3019. If I gather your opinion rightly it would amount to this, that although you are not aware of any objection to giving this power to a department of the police, yet you are well satisfied with things as they are?—Yes, certainly, as they are in the hands of the two inspectors that we have at present. When I speak of those two inspectors, I confine myself to the metropolitan district; but it is not because we have now two good men that I should think the system was necessarily a good one.

3020. On one point, namely, the inspection of gas meters, the power has been transferred to the Metropolitan Board of Works; in your opinion would any advantage arise from transferring the power of inspecting weights and measures to the same body?—I think it is very desirable that they should be all under one jurisdiction.

3021. Without saying particularly that it should be the Metropolitan Board of Works?—No; I simply mean that it should be under one jurisdiction.

3022. (*The Warden of the Standards.*) That is, I presume, with regard to the whole metropolitan district?—Yes; I am speaking of the metropolitan district. I must confine myself in all my evidence to the metropolitan district; I know nothing of the rural districts. The Newington division is a very large one. It extends from Battersea to Deptford, with a very large portion of the frontage to the river, and all the way back until you come to the rural districts.

3023. (*Chairman.*) It is understood, I believe, that the inspection of gas meters was intrusted to the Metropolitan Board of Works upon some unwillingness being expressed by the county magistrates to undertake the duty?—Our magistrates certainly did express an unwillingness.

3024. Was any special ground given for it?—I think that they did not want the appointment of the gas meter inspectors; they did not know who would be proper men to appoint. It was more upon that ground than upon anything else.

3025. It was not, in your opinion, connected with the question of expense?—Not at all; it was a jurisdiction which they did not wish to possess.

3026. In the Newington district how are the inspectors of weights and measures paid?—By a salary and half the fines.

3027. Do you think that that combination is the best system of payment?—No; I very much object to the system of half the fines; but I should like to add to that, that as there is no inspection of those inspectors, I see no other way of getting them properly to perform their duties than by giving them something above their salary; because I consider that where persons who are employed at a salary, unless there is sufficient supervision over them, they are apt to become very sleepy. But where there is proper supervision of the inspectors, it is very undesirable that they should touch any portion of the fines. I believe that our inspectors are strictly honourable men and very straightforward. I have seen nothing in the course of my experience of the

performance of their functions to call for any remark adverse to them, but I am speaking as a general principle.

3028. If under a general system a department of the police were employed for these purposes, do you think that the principle of honour and of duty would be stronger amongst them than amongst persons appointed from the civil ranks, as they are appointed now?—As a general rule I should say, yes; but with regard to our inspectors I should say, no.

3029. What is the amount of the salary of the inspectors?—250*l.* a year each.

3030. By the return which I hold in my hand, it appears that there are other emoluments, amounting to 282*l.* in the one case and to 401*l.* in the other; from what source do those other emoluments arise?—Half the fines.

3031. So that in those two instances, the A. west district and the A. east district, the amount of additional emoluments considerably exceeds the fixed salary?—Yes.

3032. But this is a gross receipt, is it not, from which deductions are to be made for certain expenses?—Yes; they have to pay the expenses of the office, and the expenses of an assistant, and they have also to keep a horse and a trap of some sort.

3033. Are you able to form any conjecture how much those gross receipts are diminished; in fact, what the net receipts may be?—No; but my impression is that the net receipt would be about the amount of the salary.

3034. Do you consider that the present salary is sufficiently large to ensure an efficient class of inspectors?—Yes, a first-rate class. It was our anxious desire that we should get such. I think Mr. Wade's salary was somewhat more, but when we divided it we made it more than a moiety to each of the inspectors who were appointed, intending that we should have the very first-class men, and above suspicion, men who should have no temptation from want of proper pay to act dishonestly.

3035. Mr. Wade was in office a long time, was he not?—Yes, a great many years.

3036. The inspectors are charged with the whole expense of their offices, are they not?—Yes.

3037. Are the magistrates satisfied with the convenience of the offices?—Yes, they were so before they allowed them to choose the offices. When they named the offices to the magistrates, the magistrates took into consideration whether they were conveniently placed or not.

3038. Your general security now for the discharge of the duties of the inspectors is, I suppose, mainly the number of cases which are brought before you?—Precisely so, and also the want of complaint by the public that they are cheated in weights and measures.

3039. In your opinion is it desirable that official visitors should make rounds sometimes to see that the inspectors discharge their duties properly?—I do not very clearly see how that is to be done; for instance, a man says, "To-day I am going down "such a route," and you see him go down such a route, and into certain shops; how can anyone form an opinion whether he acts judiciously in omitting certain shops, or in taking certain shops? I do not see how it can be done.

3040. (*The Warden of the Standards.*) Could not an official inspection be made of the offices and the apparatus, including the weights and measures, and the mode in which the inspector compares?—Yes, certainly as to that department. I considered that the chairman was asking me with respect to the inspection of tradesmen's houses; but with regard to the inspector's stamping, it is very desirable to have an inspection of what is done at his offices.

3041. (*Chairman.*) Is that done at present?—No. We have no person competent to do it; but by the standing orders of the magistrates and by Act of Parliament they are compelled to produce their office standards before the bench, I think, once a quarter, and the order is carefully complied with; but as to visiting them at the tradesmen's houses to see how the inspection is done, we are not competent to do it; there is no county officer that could do it, and it is only the magistrates themselves that could do it.

3042. The cases of information by the inspectors are brought before the magistrates at petty sessions, and adjudication is then made?—Yes.

3043. Are any of those cases referred to the police courts?—No. Formerly some of them in the Newington division were so referred. Upon the Metropolitan Police Act passing, there was some doubt expressed as to whether the county magistrates, within the metropolitan division, had jurisdiction, and during that time, the cases were brought before the police magistrates; but the inspectors reported that they were very dissatisfied with the police courts, and the parties against whom they complained were equally dissatisfied, and upon that the magistrates of the county exercised a questionable jurisdiction, if it could be questionable.

3044. Was that as a matter of practice, or as a matter of law?—It was doubted as a matter of law. I must confess that I had not a doubt about it. I was not chairman then, but I had not a doubt about it.

3045. There is the power of appeal in all cases, is there not?—Yes, there is that power; but it has never been resorted to in my time, and no appeal has ever been threatened.

3046. (*The Warden of the Standards.*) Have you any idea of the proportional number of cases brought before the magistrates in which there is wilful fraud?—It is difficult to say without seeing the list before me, but I should say perhaps about one-third, or I have no doubt one-fourth. With regard to publicans' measures, I do not think that a fourth would be cases of wilful fraud; but with regard to weights, I think the proportion is considerably more than one-fourth, probably I might say one-half.

3047. (*Chairman.*) In what class of vendors?—Chandlers' shops and bakers; those that sell to the poorest people. I may mention that in one case there were, I think, 13 informations laid against parties in one street in a very poor neighbourhood, and one of the parties candidly confessed that it was true that his weights were deficient; but if they were not, he could not compete with all his neighbours, whose weights were all known to be deficient.

3048. (*The Warden of the Standards.*) Your district is an exceptional one in that respect, is it not; there is a large proportion of poor in it, and a large proportion of small shopkeepers?—It is exceptional, as you may expect, lying by the water side, and extending back from it, and there is a very much larger number of small shopkeepers than there would be in large streets and large thoroughfares.

3049. And the proportion of fraudulent cases would be likely to be much larger than in other districts or in the country?—Very much more so.

3050. As to the seizure of balances, the law at present does not empower the inspector to seize defective or fraudulent balances in shops?—No.

3051. Do you think that he ought to have that power?—Decidedly, because the great majority of frauds are perpetrated by unjust balances, and I believe that to be perfectly well known to the fraudulent tradesmen.

3052. Do you consider that you have no power by law to dismiss trivial cases that are brought before you?—We have not. If we were to dismiss any case the officer would be liable to be prosecuted by the party for having improperly seized the weight. Either they are just or unjust. If they are just, the man is entitled to be acquitted; if they are unjust, the officer is entitled to seize. But in order to remedy that as far as possible we have inflicted very small penalties indeed upon cases which we believe to be trivial.

3053. In fact they are mere nominal penalties?—Perfectly nominal; as low as 1*s.*

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3054. If a case were dismissed with a caution, and the defective weights, measures, or balances were confiscated, would there be any liability then on the part of the inspector?—We cannot confiscate them unless we adjudicate. We cannot condemn the weights and dismiss the offender. Perhaps I might be allowed to say that I should recommend in any alteration of the law that such a power might very well be permitted. A confiscation of the weights might be quite a sufficient punishment to the offender in trivial cases, and some are very trivial. In the aggregate they would amount to very considerable fraud upon the poor, but they are frequently very trivial; a very few drams only.

3055. Have you any power to give a superannuation allowance to an inspector?—I am not clear whether that comes within the Act of Parliament. Generally speaking all the county officers are entitled to a superannuation allowance. I am not clear whether the inspectors of weights and measures come within that category, but I presume they do.

3056. A memorial has been presented to the Commission from the metropolitan inspectors, stating that there is no provision with regard to superannuation for them under the present law, do you think it expedient that the magistrates should have the power of granting a superannuation allowance, if they think fit?—Decidedly, if they have it not already.

3057. With regard to the employment of the county police in the inspection of weights and measures throughout the country, do you think it a good practice generally?—I think it is a necessary one at present. You could not give sufficient remuneration to anyone if he were not connected with some public body belonging to the county.

3058. That arises from the districts being wide and thinly populated?—Yes, very wide districts, and a very small number of convictions.

3059. And you think that the present practice works well, of giving the inspection to the superior officers of police, who can undertake the duties without neglecting their own special police duties?—I think it works very well as far as I am able to form an opinion. The only means that I have of forming an opinion is that, as chairman of the finance committee, the books of all the inspectors of weights and measures are submitted to me once a quarter.

3060. Do you know that it is the general practice not to give any remuneration to the police officers for the performance of the duties of inspectors of weights and measures?—No, I rather think the contrary. I believe they are paid.

3061. From the returns which have been made to us, it appears that in very few cases indeed they receive more than their actual expenses; they receive no remuneration?—I find that in our county accounts there is included the quarter's salary to the inspectors, and an allowance to the rural constabulary, and that allowance amounts to about 85*l.* a year; but I would prefer not to give any opinion about the rural constabulary.

3062. (*Chairman.*) Does any point occur to you which you think it desirable to state to the Commission as bearing upon the administration of the law generally upon this matter?—No; I do not think there is anything further. I certainly think it would be desirable to put all these sort of things under one jurisdiction, such as gas, and everything else where an inspection is necessary.

The witness withdrew.

Mr. Rodolphus Harvey examined.

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3063. (*Chairman.*) You are an officer in the Royal Irish constabulary, are you not?—I am.

3064. Of what rank?—A sub-inspector, and I am *ex officio* inspector of weights and measures at Belfast.

3065. Have you had opportunities of giving great attention to the law and to the practice of the inspection of weights and measures in Ireland?—I have had.

3066. An important change was made by the law of 1860, was there not, at which time the inspection of weights and measures was transferred to the constabulary?—Yes.

3067. As far as you have been able to observe has the change worked well?—I believe it has worked well. I should have said perhaps at the outset that I have the charge of the standard weights and measures for the county of Antrim. I am the officer appointed by the inspector-general to have the custody of the county standards.

3068. At a later period than 1860 a transfer of the control over the inspection of weights and measures in the city of Dublin was made to the Dublin metropolitan police, I believe?—An Act of Parliament was passed to that effect; but I cannot give any evidence as to the way in which the law has worked in the city of Dublin.

3069. In each of the petty sessional divisions have the inspectors generally performed their duty well?—They have so far as my experience goes. They give a good deal of attention to the duties imposed upon them. They seem to be most anxious; and I have heard the magistrates and others express their approval of the way in which the inspectors discharge their duties.

3070. Are the duties of those inspectors confined to the business of weights and measures, or have they other duties?—They have other duties. In point of fact they are not relieved from any purely constabulary duties in consequence of having to discharge the duties of inspectors of weights and measures.

3071. Are they liable to be called upon for assistance in criminal cases for instance?—Yes; they have to discharge every other duty which they discharged before the passing of the Weights and Measures Act.

3072. As far as you have observed has inconvenience arisen from that mixture of duties?—I think not. In accordance with our instructions we select the most convenient time for employing the men, and they are rarely more than one night absent from their own particular stations. The longest period that I know during which they are absent from their station is when they come in from their county stations to Belfast to have their sub-standards compared by me with the county standards; and I compare them once in a year.

3073. Do they receive special pay in consequence of that?—Not in consequence of that. They receive when they are a night absent from their station the sum of sixpence for the night; but they are very rarely absent at night.

3074. In the county of Antrim, for instance, what is the number of inspectors so employed?—There are 26 altogether.

3075. Does not that appear to be a large number for the county?—It does in my opinion.

3076. Would not the duty be performed as well by a smaller number of men entirely devoted to the subject of inspection of weights and measures?—I think a lesser number might answer as well. There would be some difficulty in sending the men out of their own proper sub-constabulary districts into others, but I think an arrangement might be made to have one inspector of weights and measures for each sub-inspector's district in the county, and that might be a sufficient number for the county of Antrim.

3077. I suppose that appointment of those inspectors from a well organized force, like the Irish constabulary, gives great facility for instructing them in their duties and in enforcing their responsibility?—No man under the rank of a constable in the force

is appointed an *ex officio* inspector. Before a man attains that rank he has served, as a rule, some 10 or 12 years in the constabulary, and no man is prompted who has not what I may call literate qualifications to a certain extent.

3078. Does he go through any examination or instruction by a qualified person?—Before promotion to the rank of constable he is examined in writing from dictation by his county inspector, and he must also appear to be a man of intelligence and judgment.

3079. My question had more particular allusion to the duties of an inspector of weights and measures. Has he any special training for that purpose?—No special training whatever.

3080. With regard to copies of the standards, it appears that there is only one set of standards of weights and measures for each county?—Yes.

3081. And those standards ought to be re-verified within certain periods which are prescribed by law?—The county standards must either be verified in London at the Standards Office, or be compared, in the presence of a magistrate, with a copy of the standards in some adjoining county, which copy had been previously, within the period of five years, compared in London.

3082. So that, in fact, the county standards in Ireland, to a considerable extent, perhaps, do depend upon comparison with the official standards in London, or with other county standards so compared?—Yes; they do. In some counties the grand juries are disinclined to send their copies of the standard weights and measures over to London for comparison; it is attended with some considerable expense, and in consequence they have availed themselves of that provision of the law to have their standard weights and measures compared with those of some adjoining county.

3083. (*The Warden of the Standards.*) Do you consider that the comparison of the standards of one county with the standards of another county is legal?—According to the Act of Parliament, the 23rd and 24th of Victoria, chapter 119, section 15, I believe that the standard weights and measures of a county can be compared in that county with the standards of an adjoining county if the latter are sent into the county for the purpose, provided the comparison takes place in the presence of the justices.

3084. Are not the words "That no copy of the "standards shall be deemed legal unless it shall have "been compared and re-verified at the Exchequer, or "unless such model or copy have been compared by "the sub-inspector, in the county in which it is used, "in the presence of one justice of the peace, with a "model or copy of the imperial standard duly com-"pared and verified at the Exchequer?"—Those are the words of the Act of Parliament.

3085. And you think that they extend to the comparison of your standards with the standards of another county?—Yes.

3086. Are you aware that the clause in the Irish Act is taken word for word from the British Act, 22 & 23 Vict. c. 56. s. 1., and that your construction has not been accepted here; and also that I have brought the point expressly under the consideration of the Board of Trade, and suggested that if there was any doubt as to the legal construction of those terms, they should take the opinion of the law officers of the Crown, expressing at the same time my own conviction that it was not legal to compare the standards of one county with the standards of another county; and that the instructions which I received from the Board of Trade were that the law appears so perfectly clear as to the illegality of the practice, that there was no reason for a case upon which to obtain the opinion of the law officers?—I was not aware till now that such was the case.

3087. (*Chairman.*) Who is responsible for the due re-verification of the standards, by whose authority is it done?—Certain duties having been imposed by law upon the constabulary, it becomes the duty of the inspector-general to see that the provisions of the law are carried out by the force generally. He has directed several circulars, calling the attention of the force to the provisions of the law as regards weights and measures.

3088. It is not one of the duties of the grand jury?—The grand jury are bound to provide the standards, and the judge of assize is by law empowered to inquire whether the standards have been provided; and if standards have not been provided in a county, the judge can order the treasurer of the county to supply the standards, and the judge has the power of ordering the expense to be levied off the county. A similar power has been given, I believe, to the chairmen of quarter sessions, with regard to municipal boroughs in Ireland. The chairman can inquire whether standards have been provided for the boroughs, and if not, he can direct the town clerk to provide them, and he can order the expense to be levied off the rates.

3089. (*The Warden of the Standards.*) That provision only extends to the furnishing of standards in the first instance, not to their periodical re-verification from time to time, does it not?—Clearly only to providing the standards; and there is a want of provision in the law as to sending the standards for re-verification.

3090. So as to fix the responsibility upon some person?—Yes. I think that the want of a proper comparison would make all legal convictions impossible, and it would be the duty of the convicting justices to get some proof that the standards were legal standards.

3091. (*Chairman.*) By means of those standards are sub-standards formed for the petty sessional divisions?—Speaking generally, a set of sub-standard weights has been provided for every petty sessions district in Ireland; those sub-standards, I may say, are of iron, which I think objectionable.

3092. Is there any special charge for verifying those petty sessional standards?—The inspector-general of constabulary holds the county inspector responsible for the verification of the sub-standards within a given period, once a year, and he has directed the county inspector, when going through his county on his inspection, to make careful inquiries in every petty sessions district as to whether the sub-standards have been compared with the county standards within the specified period.

3093. There is some difference in this respect in the city of Dublin, I believe, to which the provisions of the general Acts of 1860 and 1862 did not apply, and where the inspection of weights and measures was transferred from the corporation to the Dublin Metropolitan Police, under an Act of 1867?—I cannot speak as to the city of Dublin.

3094. Upon the whole, does it appear to you that there is sufficient security for the maintenance of the accuracy of the standards and sub-standards?—I think the law might be improved in that respect.

3095. What is the particular direction in which you would say that it could be improved?—I think that the section which I have already referred to of the 23rd and 24th of Victoria ought to be repealed, and that all county standards should be sent at least once in five years to London for comparison.

3096. And then do you think it necessary to make any distinct provision with reference to the sub-standards?—I find that the sub-standards very frequently lose considerably in weight from oxidation; they have to be carried about by the *ex officio* inspectors round their districts when examining the weights of traders; and in the county of Antrim particularly, where the climate is a very moist one, they very often are exposed to rain, and necessarily so, for very lengthened periods, and unless very great care is taken by the constable on his return to the station, the weights are likely to be injured.

3097. You mentioned that you have found that they have become lighter. Has that been found by any periodical examination which you have made yourself?—Yes, on my examination.

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3098. And it is the practice with regard to those sub-standards, that they generally are annually examined?—Yes. I may remark for the information of the Commission, if you will allow me, that after my county standards were compared here, about two years ago, I found most of the sub-standard weights very deficient in weight, when they were brought for my next examination.

3099. What steps were taken then?—As far as I was able, I rectified the sub-standards by getting a handy constable to insert lead, and make the weights agree as far as possible with the county standards.

3100. (*The Warden of the Standards.*) Your standard weights were accurately adjusted in London before they were sent for re-verification in this office, were they not, and any deficient weight was set right?—Yes, and from my examination of the sub-standards before and after, I am quite sure that some of them had been altered, which proves the necessity of re-verification within a certain period.

3101. Do you think five years too long a period for the weights?—I would prefer that they should be examined more frequently; but seeing that considerable expense is incurred in sending them from Ireland, probably objections might be made by the grand juries, and I would scarcely recommend that that period should be altered.

3102. Do you think that one set of standard weights and measures is sufficient for a county in Ireland?—I do, one county set.

3103. (*Chairman.*) What body superintends the expense of providing and re-verifying them?—The grand juries provide the necessary expense from the county cess.

3104. Does that apply to all the county standards?—It does to all; they provide the amount from the county cess.

3105. You have no standards of troy weight, have you?—No.

3106. Are there any in Ireland?—No.

3107. Is the system of troy weights used at all in the buying and selling of plate?—I believe it is used by goldsmiths and silversmiths and by apothecaries, but it is not in general use in Ireland.

3108. You do not consider it necessary, do you, to make any provision for the inspection of troy weights in shops?—Not for the country generally, but I think that it would be well to have some means of verifying troy weights in Dublin, Belfast, Cork, and other large towns. I do not think it would be necessary to supply standard troy weights for every county in Ireland.

3109. There is reason to think, from information which the Warden of the Standards has collected, that in several districts in Ireland the inspector has been left for a considerable period without any balance. Do you think that a defect in his equipment?—I think that is a great defect.

3110. In those cases how can he compare weights or stamp them?—I should say he is not in a position to carry out his duties. I have balances in my county.

3111. Does it appear that sufficient records are kept and exhibited to the proper authorities of the number of weights and measures stamped, and of those seized as defective?—I am quite sure, from my own knowledge, that the system of keeping books and records is defective in Ireland. We have got no general instructions to keep books or records as to weights and measures.

3112. (*The Warden of the Standards.*) It appears that since the duty of inspection was transferred to the constabulary, it has not been the practice in Ireland to receive fees for stamping which are payable by law. Can you give any sufficient reason for this practice, and why the law in this respect should not be carried out as it is everywhere in Great Britain?—I cannot state the reasons, but we have never been directed to take the fees. I believe the law states that the constabulary are to take no fees for adjusting weights and measures.

3113. Can you point out the provision of the Act to that effect?—The 5th section of the 25th and 26th of Victoria, chapter 76, says that the *ex officio* inspectors of weights and measures shall possess and exercise all the powers and authorities which any inspector of weights and measures heretofore possessed or exercised or had been liable to, under and by virtue of the Act of the 5th and 6th years of King William the Fourth, chapter 63, or any other Act now in force, and shall perform such duties under the direction of the justices at petty sessions without fee or reward. I think under that section we have understood that we could not claim from any person any fee in connexion with the discharge of our duties.

3114. Does not that apply to personal remuneration to the inspector for the performance of his duty, and not to the fee to be charged for stamping, which under the General Act is to be carried over to the treasurer of the county?—I am not clear myself upon the point; but those words in that Act of Parliament have had the effect in our force of preventing us from taking a fee.

3115. It is certain that the clause has been so construed, but you are not aware, perhaps, that after the point was raised by me, in a paper laid before the Commission, the question of the legality of levying fees for stamping weights and measures in Ireland was submitted by the Irish Government to the law officers of the Crown in Ireland, and that on 3rd October 1868 they gave the following opinion, viz., "We are of opinion that these fees are legally payable to the *ex officio* inspectors, and that the amount collected should be applied as directed by the 24th section of the 5th and 6th of Victoria, chapter 63. We think the words 'without fee or reward' refer to the remuneration paid to the old inspectors, and not to the fees payable by the parties charged"?—I was not aware of that before.

3116. (*Chairman.*) Are you aware whether any weights or measures have been stamped which are not strictly included in the statutable list of weights and measures,—for instance, weights of $3\frac{1}{2}$ lbs.?—It is not our practice in Ireland, so far as I know, to stamp any weights but those with which we have been provided with corresponding standard weights.

3117. As far as your own knowledge has gone there have been no weights of $3\frac{1}{2}$ lbs.?—There may have been, but I have no knowledge of them. I have never, in my experience as an inspector, met with any weight of $3\frac{1}{2}$ lbs.

3118. Inspectors in Ireland have power to seize defective balances, have they not?—Yes, they have.

3119. Are you aware whether defective balances are frequently seized?—I am not aware that many balances have been seized; power to seize them is given by the 8th section of the 25th and 26th of Victoria, chapter 76.

3120. (*The Warden of the Standards.*) Have you heard any complaints against the exercise of that power?—None whatever; and the power given to the police has had a very good effect in preventing fraud.

3121. (*Chairman.*) The police have the power also of interfering, have they not, with packages that are made up, professing to contain a given weight?—I am not clear upon that point; but any *ex officio* inspector can, without an order from a magistrate, enter any shop, store, yard, or place, where goods are exposed on the counter for sale, and can examine all beams, scales, balances, weights, and measures found therein, and if the beams, scales, or balances shall be found light or deficient, they can be seized and the person offending can be prosecuted.

3122. It has not come to your knowledge that in any instances the inspector had interfered with packages made up, and exposed on counters professing to contain a given weight?—No. I think that under the general law persons guilty of any kind of fraud could be prosecuted, but we have not given our attention particularly to that subject.

3123. Does the inspection of gas meters come under you in any way?—It does not, and I do not think that it would be desirable that the duty of inspectors of gas meters should be discharged by the Irish constabulary. I may say that I consulted the inspector-general of constabulary on that point when passing through Dublin, and he is of opinion that there would be a strong objection to employing the members of his force in that way.

3124. (*The Warden of the Standards.*) It appears that the inspectors of weights and measures in Ireland have very large powers under the 8th section of the Act of the 25th and 26th of Victoria, chapter 76; they can inspect all beams, scales, balances, and weights and measures in shops and other places, and if they are found light or unjust, or contrary to the provisions of the Act, *or if any fraud shall be wilfully committed in the using thereof*, the same shall be liable to be seized and forfeited, and the person convicted shall be subject to a penalty; also under the 14th clause there is a penalty of 5*l.* for any person who shall "knowingly weigh or caused to be weighed, "contrary to the provisions of this Act, or act or "assist in committing or connive at any fraud re- "specting the weighing or the weight or measure "of any such article;" do you know whether those powers are fully exercised?—They have not been exercised to any considerable extent in my experience, but I would suggest that the law should be more clear, and that a more express provision for checking fraud of that sort should be made by the legislature. With reference to the powers given by that 8th section to the *ex officio* inspectors to go into shops or other places, I have never heard any complaint whatever from any member of the public that such powers have been conferred upon the police, nor has any complaint ever been made against any member of the force for any undue use of that power.

3125. There is one difference between the law in Great Britain and in Ireland, that in Great Britain an inspector can enter a shop only under the written authority of a magistrate, but that is not the case in Ireland?—It is not.

3126. An inspector does not require any special authority in Ireland to enter a shop, as an inspector does in England?—No, he does not.

3127. And there have never been any complaints to your knowledge upon that point?—None whatever. The provision has been generally accepted by the public without any complaint, and it is believed to have checked the use of unjust weights to a very great extent. A constable, without loss of time and without looking for a magistrate to give him authority, can at once go into any shop and examine the weights and measures, and his being able to do so quickly assists him very much in discharging his duty in protecting the public.

3128. Do you think that the established practice in Ireland, of imposing the duties of inspection of weights and measures upon the police officers without giving them any remuneration for the performance of their duties, is a salutary practice?—I think it would be better to pay the men for the extra duties which they have to perform.

3129. In that case should the expense be thrown upon the county?—It does not necessarily follow, I think, that the expense should fall upon the county generally, as a fund might be created by appropriating the fees chargeable to traders upon the comparing and adjusting of weights and measures, and by letting the sums so received form a fund. I think that from that fund the police might be paid some small annual sum for the performance of those duties. I think also that it is not necessary to have an *ex officio* inspector in each petty sessional district, but probably one for each sub-inspector's district in Ireland might be sufficient.

3130. In that case must not the law be altered, because the 7th section of the Act of 1860 expressly states that not less than one set of sub-standard weights and measures and one set of accurate beams and scales shall be provided for each petty sessional district in any county?—Yes; I am quite aware that it is necessary according to law to appoint one for each petty sessional district, but I believe that except in large towns one would be enough in each sub-inspector's district, and the whole number would then be about 280, whereas at present there are about 636 in Ireland.

3131. If the number of inspectors and inspectors' districts were reduced, do you think it expedient that sub-standards of iron should no longer be used, but that better standards of brass should be provided, as is the case in Great Britain?—I am quite sure that it is absolutely necessary to provide better sub-standards, whether the number of inspectors is reduced or not.

3132. By reducing the number of districts of inspection it would facilitate the providing better standards, because it would materially reduce the expense, would it not?—Clearly so. I am quite sure that if the number of *ex officio* inspectors were reduced, grand juries would be ready to provide better standards.

3133. And you think that would be best done by appointing an inspector for each sub-inspector's district?—In the case of counties generally I think that would be quite sufficient.

3134. In that case there are certain large cities and towns, are there not, which also require inspectors?—Yes; and I think it might be left to the discretion of the inspector-general, or to the Board of Trade, to say what number would be required in any particular place.

3135. Do you think it would be a good regulation if that were left by law to the discretion of the inspector-general of constabulary with the approval of the Board of Trade?—I think that would be the best principle that could be adopted.

3136. Do you see any objection against all appointments of inspectors of weights and measures being reported to the Board of Trade, and their approval obtained before the appointment should be legal?—I see no objection whatever to that; it would be easily done without any loss of time, and I do not see why the constabulary authorities should object to it.

3137. Do you think it would be a good regulation if the duties of the inspectors of weights and measures in Ireland were carried on under specific instructions issued to them by the Board of Trade, so as to ensure uniformity of practice throughout the kingdom?—I do. I think that uniformity would be most desirable, and that there is a great deal of doubt and ambiguity about the present law as to weights and measures, and about the regulations on the subject generally.

3138. In that event might not all cases of doubtful construction of law be referred to the Board of Trade, so that an authoritative opinion might be obtained when required, and instructions issued accordingly to the different inspectors?—I think that the duty of inspectors of weights and measures not being a purely constabulary duty, the inspector-general would consider it an advantage to have an authoritative legal or scientific opinion with reference to any order which he might issue to the force.

3139. Do you see any reason why the fees for stamping weights and measures should not be levied from the traders in Ireland, as they are in Great Britain?—I see no objection whatever; on the contrary, I think that traders would gladly pay those fees, and that those fees would form quite a sufficient fund for remunerating the constabulary, and for other purposes besides.

3140. A suggestion has been made to the Commission that it might be expedient to separate the duties of comparing and stamping weights and measures from the duties of inspection of weights and measures, which is more a police duty, as involving breaches of the law; do you think it would be expedient to carry out that practice in Ireland?—I think it would be very expedient. I am aware that

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the inspector-general of constabulary would have a strong objection to the employment of the constabulary in adjusting the weights and measures of traders. We do not adjust them at present.

3141. My question applied to the comparison and stamping of weights and measures, and not to the adjusting. If the duties of verification and stamping and of inspection were separated, do you think it would be expedient that the verification should be placed under the local authorities, such as the grand juries, as they were before the change of the law in 1860, and that the duties of inspection only should be left with the officers of constabulary?—I think that some competent authority should be empowered to give specific directions with regard to the comparing and verifying of standard weights and measures, and I would prefer leaving it to the Board of Trade, or some other competent authority, to have the whole control with regard to that matter.

3142. Does not the verification and stamping of weights and measures require more peculiar qualifications of skill and knowledge than are generally possessed by the officers of police in Ireland?—I have no doubt whatever that the duty would require more skill than the constabulary generally possess.

3143. Do you think it would be expedient to make a regulation, as has been suggested, that official inspectors or supervisors, under the Board of Trade, should go round periodically, and inspect the local standards and apparatus, and the mode of the performance of those duties?—I think it would be very desirable to have that suggestion carried out.

3144. (*Chairman.*) Have you any further remark which you would wish to make to the Commission upon the subject of their inquiries?—I wish to observe with regard to petroleum, that the Acts which extend to Ireland have imposed certain duties on the inspectors of weights and measures.

3145. (*The Warden of the Standards.*) Has that provision of the law been practically carried out?—It has not in Ireland, and I believe it has not been carried out because the authorities are of opinion that it would require more technical skill and acquaintance with substances of that kind than the constabulary can be expected to possess, in order to discharge those duties.

3146. If separate officers were appointed for the verification and stamping of weights and measures, would it not be more convenient that the duties of verifying and stamping gas meters in Ireland as well as the inspection of petroleum should be exercised by those officers?—I think that those duties should be performed by the verifiers if appointed, and if the duties are separate. Assuming that the verifiers would be properly paid, and that they would have no other occupation except that of verifiers, I think that they could look after the inspection of the gas meters, and discharge the duties imposed upon the inspectors of weights and measures by the Petroleum Acts, and also verify all the sub-standards of the county.

3147. With regard to the adjustment of sub-standards, I gather from your evidence that there is some difficulty in having those sub-standards properly adjusted from time to time; by whom is the adjustment of sub-standards usually done?—That adjustment is at present made by the sub-inspector of constabulary who has charge of the county standards.

3148. Do you think that practice satisfactory?—No. I think the practice is unsatisfactory. I think very few of our officers possess sufficient skill to verify the sub-standards properly, and that, as they are unpaid for the duties they perform, they in many instances will not take much trouble. I think it better that there should be paid men where duties of any kind have to be properly discharged.

3149. Practically speaking, do you consider that the sub-standards of iron used at the present time in Ireland, from their liability to oxidation, and from the difficulty in their being properly adjusted, can fairly be called standards at all?—They really cannot. I know that in many shops of traders the balances, weights, and measures are of a far superior kind to the sub-standards, and the *ex officio* inspectors have complained to me that the traders in many instances have disputed the accuracy of the sub-standards.

3150. (*Chairman.*) At present do the sub-inspectors correct the weights with their own hands?—Not necessarily so. I generally employ a handy man, but I afterwards stamp the weight with my own hands; still I am of opinion that it is what I would call cobbling; the thing is roughly and badly done.

3151. (*The Warden of the Standards.*) There is really difficulty, is there not, in having the commercial weights and measures properly adjusted?—The greatest possible difficulty exists, and in a large commercial town like Belfast I am aware that some of the leading men consider the present state of affairs very unsatisfactory.

3152. Do you see how the difficulty is to be met?—I think it would be best met by placing the whole of the regulations for inspecting and verifying weights and measures under some central control, and under some department, from whence, when consulted, regulations, which would be uniformly acted upon, would be issued.

3153. Do you think if a separate officer was employed to verify and stamp weights and measures that he should also be allowed to adjust them?—Generally speaking, I think that the verifier so appointed might be allowed to adjust, and that the public would have confidence in an officer whose whole time was given up to the discharge of the particular duty, and who was looked upon as a skilled man.

3154. Might not that cause great jealousy and complaint amongst the tradesmen in the place, who would naturally think themselves quite qualified to adjust weights and measures, and their trade unduly interfered with?—I am not prepared to say that it would cause jealousy, but even if it did, I think that the reasons for establishing a good system as regards weights and measures should outweigh any feelings of jealousy on the part of tradesmen.

The witness withdrew.

Adjourned.

Friday, 3rd December 1869.

PRESENT:

THE ASTRONOMER ROYAL IN THE CHAIR.

THE PRESIDENT OF THE ROYAL SOCIETY.
PROFESSOR W. H. MILLER.

THE WARDEN OF THE STANDARDS.

MR. HENRY CARTER, jun., examined.

Mr. Henry Carter, jun.
3 Dec. 1869.

3155. (*Chairman.*) You are connected, are you not, with the firm of Sloane and Carter, of Birmingham?—Yes.

3156. And your business is principally in matters affecting the precious metals, gold and silver, in all the various branches of their manufacture?—Yes.

3157. Would you have the goodness to inform us, in the first place, from what sources you usually procure the bullion gold and silver?—From the bullion dealers in Birmingham; there are one or two there, and we have it from them.

3158. You do not procure it from foreign countries?—No.

3159. In the purchase of those metals what system of weight do you commonly use?—We use troy weight exclusively.

3160. I presume that the troy pound does not enter into your customary use?—It is never used; the troy ounce is our highest limit, to whatever extent we may go.

3161. In the subdivisions of the troy ounce do you adopt the pennyweight and grain, or the decimal subdivision which has been sanctioned for some years by Act of Parliament?—The pennyweight and grains only.

3162. You never use the decimal subdivision which is adopted in the Bank of England and by some bullion dealers?—Never.

3163. In the purchase of those metals of course you are extremely accurate with regard to the weighing?—Yes, very minute.

3164. Have you balances of the first class?—Yes; of the best make.

3165. What is your assurance of the accuracy of the weights used?—Inasmuch as the gold being weighed to us so many ounces with which we are charged, we weighing it ourselves, and our weights agreeing with those of the bullion dealers from whom we buy it, proves that both weights are right.

3166. Where have your ounce weights and your other weights been verified or upon what credit do you accept them?—Upon the credit of the inspector of weights at the public offices, and several times we have sent them to the first makers of weights and scales in Birmingham. This refers to ounce weights only. The subdivisions we can prove ourselves by weighing them against the ounce.

3167. Is there actually an official inspection of the weights which you use for this purpose?—There is an official inspection, but it is not necessary that we should submit to it; it is our pleasure to send our weights to the public offices.

3168. It appears then from your experience that the public offices in Birmingham are furnished with proper sets of troy weight?—They are.

3169. Of which you avail yourselves in those private transactions, not because you are compelled to do so but because you think it desirable to refer to them?—Yes; occasionally to have our weights checked.

3170. When you have those weights examined in this manner by the inspector, does he stamp them?—Yes, he puts a stamp upon them. I can hardly speak for certain, but I believe that it is a crown that he puts on them; at any rate it is a stamp which is peculiar to the office, I presume.

3171. Have any disputes ever arisen between yourselves and the vendors of the bullion, from any discordance of the weighing or the discordance of the weights which you use?—Discrepancies have arisen at times, but as soon as we find a discrepancy we immediately send our weights either to the public offices or to the maker, in order to see if ours are right, and if we can show that the manufacturer or bullion dealer is wrong.

3172. Are you aware that any legal proceedings have ever occurred upon this matter between the factors and the sellers?—No, I do not know of any.

3173. It appears from the returns made to the Commission that there are no troy standards at Birmingham?—I refer to the public offices in Moor Street; they have troy weights at the public offices in Moor Street, that is to say, bullion weights.

3174. By bullion weights do you mean the ounce decimal with its multiples and parts?—Yes; there would be the ounce for our purposes; they have no pennyweights and grains; we have not sent the smaller weights, only the nest sets of weights.

3175. Do you sell bullion in the shape of bullion?—No, not at all.

3176. You employ it entirely in manufacture?—We manufacture it up and then sell it.

3177. Is the manufacture either under your own eye or in shops in which you have an interest?—Both, but as manufacturers we do not ourselves do much. Of course, indirectly in buying a lot of jewellery, we employ a great many men, though they are not under our own eye; we buy it wholesale principally.

3178. Do you mean that they are men to whom you pay wages, although they do their work at their own houses?—No, we only have a few men on the premises to whom we pay wages; our usual business is done by buying largely of the manufacturers. We are what are termed in the trade, factors; or to speak perhaps more accurately, we might call ourselves middlemen, buying very largely from the immediate manufacturers, making a little ourselves, and supplying the shopkeepers throughout the country.

3179. In buying from the manufacturers in what way is the price decided—is it by taking a certain sum for the weight of the metal and a certain additional sum for the workmanship and fashion?—Where a thing is at all plain and does not involve any very great amount of time and fanciful work, the basis of calculation is upon the weight and quality of the metal, but in the very fanciful jewellery the gold in an article is nothing, comparatively speaking, because of the gems, &c., that may be in it.

3180. In those articles of which you speak in which there is not much workmanship, and in which the weight is the first basis, is a certain per-centage put upon the value of the metal, as representing the value of the workmanship and elegance?—The price of the gold is sent out at so much, then the extra is what we technically term fashion, and that includes the man's time for making the article, the waste occasioned in the working of it up, the manufacturer's profit, and the discount that will come off.

3181. In the sale of gold as regards the amount of metal, what is the lowest subdivision of the ounce to which you go?—A grain.

3182. Similarly for silver what is the lowest to which you go?—The pennyweight. Allow me to add that in the lower qualities of gold we do not weigh to the grain, that is to say, speaking of gold that is alloyed to a very low standard.

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3183. In working up gold and silver fabrics, the gold and the silver are weighed out to the workmen, are they not?—Yes.

3184. I presume in your weighing out you adopt that same limit of weights which you have just mentioned?—Yes.

3185. And is it weighed back to you in the same manner?—Yes.

3186. For those purposes do you find the present subdivision of the troy ounce to be sufficiently convenient?—Yes, quite so.

3187. And well understood by all parties?—Well understood by the men; but it is now not so much done as it used to be, for this reason, the gold used to be weighed out to the men, and they knew what they had, and then if they fouud themselves a little short, before they gave the article and surplus gold, &c., up to the masters, they used to make the weight up by brass and copper filings; they would take care that the weight which they sent in to the master was the same that he delivered to them. That system now is falling off; the masters weigh it into the shop and enter it in a book, and they do not let the men know what they have given out to them, so that that prevents the men making it up to the amount which was given out.

3188. Of course that produces the uncertainty that if they attempted to make it up they might over do it?—Exactly so.

3189. Then we are to understand you to say that as a consequence of that, the weighing backwards and forwards is not done so regularly now as it used to be?—It is done by the masters quite as regularly, but not by the men.

3190. But the use of the weights and scales is confined to the masters in a great measure?—Yes, it is so now.

3191. Do you sell goods from the shop to a great extent, or is it principally as middlemen that you carry on business?—Our principal amount of trade is in goods which we buy and sell as middlemen, and a large portion of that of course we buy by weight.

3192. The goods which you sell as middlemen can hardly be considered as being sold in shops, I presume?—They are sold to shopkeepers to open shops.

3193. Those which you sell as middlemen are not in open shops, they are in your own warehouses, are they not?—Yes, in our warehouse we sell nothing comparatively speaking; it is all sent round by travellers.

3194. Are you acquainted with the practice of selling in open shops?—Yes.

3195. Is weight used there to any great extent?—No, not to any extent.

3196. In fact every piece of goods of the nature of gold and silver fabric or jewellery is sold, is it not, by the piece?—Yes, so much the article, except in silver tea sets, &c., and then it is usual for the customer to buy by weight.

3197. Of course in those shops where silver plate is sold by weight there must be scales and weights?—Yes, of course.

3198. Are you aware of the extent to which they are examined by the public inspectors?—I am not. I have heard very conflicting statements on that point. A large manufacturer assured me that the inspector entered an establishment at Manchester and compulsorily examined the weights, which were troy, and fined the factor for their being short or deficient. I have never known a case in Birmingham, and I do not think that the authorities have the power there.

3199. Is it the case that considerable sales of silver plate are made to or from pawnbrokers and persons of that class?—Yes; but pawnbrokers, I think, do not sell much by weight.

3200. Still you understand, as far as weight is recognized, that the pennyweight and grain are used as subdivisions of the ounce?—Yes, and only those.

3201. Do you think that is done to such an extent that there might be some inconvenience in making a change?—For a time there would.

3202. Supposing that the inconvenience were overcome, do you think that there would be any advantage in introducing either of the two systems, which are or will be undoubtedly recognized in the British Empire, namely, the avoirdupois, which is familiar to everybody, or the metric, which is not so familiar, but which has some advantage in its decimal subdivision?—I have thought over the subject and spoken to several manufacturers, and up to the present time I have been unable to see any advantage which would be gained by the change.

3203. Perhaps from the nature of your business you are not able to answer distinctly this question, whether the common people are aware with any precision of the difference between the troy ounce and the avoirdupois ounce?—I presume you mean the general public, and if so, the general public think an ounce is an ounce; they do not know any difference between the one and the other.

3204. With persons in large business like yourself, the difference is known well enough, is it not?—Yes, quite so.

3205. (*The Warden of the Standards.*) In the series of troy weights that you use, what denomination of weights have you?—We have the pennyweights and weights which represent the 2, 3, 4, 5, 6, and 10 pennyweights, and then comes the ounce, &c. We have of course a series of small weights representing the different number of grains.

3206. What multiples of the ounce weight have you?—The $\frac{1}{4}$, the $\frac{1}{2}$, and the 1 oz., the 2, 4, 8, 16, 32, and 64 oz., and so on, the original nest set, and then the larger weights.

3207. You have the whole series, have you not, which was legalised in Queen Elizabeth's time?—Yes, we have the usual scale.

3208. You are not perhaps aware that the only series of troy ounces, except the decimal bullion series, that is now recognized by law extends no further than the 12 ounce weight, or pound troy?—I was not aware of that certainly.

3209. There are standards of 1, 2, 3, 6, and 12 ozs. which is a pound, we have no others.—Perhaps I may be allowed to remark that the pound is never used. A man would say 500 ozs., he would not say so many pounds.

3210. But the pound troy is practically 12 ozs.?—Yes, 12 ozs. are a pound, though the pound, as such, is never recognized in business.

3211. Do you happen to know whether more gold and silver is bought by pawnbrokers and jewellers from the public by weight than is sold to the public by weight; is there not a good deal of old gold and silver bought by weight from the public?—Old gold and silver is bought by weight, but I think that the public, as a rule, have to leave themselves in the hands of the shopkeeper.

3212. Is it not the fact that more gold and silver is bought from the public by weight by pawnbrokers and jewellers than is sold to them by weight?—Yes, because that which is bought from the public is only useful for the metal itself, therefore it is bought by weight for the simple reason, here is so much gold and we know what it is worth by the ounce.

3213. Is not it a strong argument for the abolition of troy weight that the public generally do not know the difference between the avoidupois ounce and the troy ounce?—I think that anyone who buys by weight will make himself conversant with the weight by which he is buying.

3214. (*Chairman.*) Have you any remarks to make which you think it would be desirable that we should hear from you as prompted by your own experience, in addition to the very accurate and useful information which you have been good enough to give us in answer to the various questions which have been put to you?—The great stand, I believe, that will be made against any alteration by the manufacturers, factors, and shop-keepers is, that it will entail an immense amount of inconvenience; whereas the good they will not be able to see. It will also

upset the system of assays, with which the sho p keepers are now pretty well acquainted, and again it will cause a very great deal of inconvenience and I believe, serious errors as regards the alloying of metals, that is, reducing the pure gold to any lower standard you may require. It will cause a great deal of loss in that way, inasmuch as many things that are made up will have to pass through the Hall. A manufacturer believing that they are of a stated quality might under any new system fall into an error, and the things at the Hall, not being what their description purports them to be, will be cut up, and thus it will be a great loss to him of time, trouble, and workmanship in making them up.

3215. With reference to the assaying, do you assay yourselves, or do you refer to the professional assayers?—We refer to the professional assayers, we usually send to London, to Johnson and Matthey, and of course anything that we wish to have Hall marked passes through the Assay Hall, and is there assayed.

3216. The number of such persons being limited, I presume they would have very little difficulty in acquiring the new system?—Except that as a class the Birmingham manufacturers are not such an educated body of men as you would presume; the majority of them can perhaps write their own names, and in the case of some of them, you have reached the utmost of their intellectual attainments when they have done that.

3217. (*Professor Miller.*) In the assay do you scrape off a little bit of metal and send it to Johnson and Matthey or any other firm, or do you send the article itself?—We only send pieces off ingots to Johnson and Matthey. The gold is melted and poured into ingots, and a piece is chipped off the end or the corner and is then sent up to them. For the Hall mark, the things have to go into the Hall perfect, at least all the parts will have to be there which will constitute the article when made up; they will not stamp nor pass anything which is not perfect.

3218. Then the goods are stamped, are they not, before they are finished?—Yes, otherwise the piece that the Hall scrape or cut off, and the bruises made by their stamps, would spoil many articles. For instance, in a plain stud, we will say, you have to send the two backs and the piece of what we call the cheneer which joins them, so that they can see that those when made up will form the article, and nothing more is then to be added.

3219. (*The Warden of the Standards.*) You are probably aware that the Commission have recommended that there should be a set of decimal grain weights, that is to say, a decimal series from the fraction of a grain up to 1,000 grains, as standards in this office, and that they should become legal weights throughout the country. Do you think that if troy weight were abolished, those decimal grain weights would be much used and be serviceable?—If troy weights were abolished compulsorily, they would be, otherwise, unless it were declared illegal to use our old ounces, pennyweights, and grains, I do not think that any new system would be taken to.

3220. Is it not the case that the weights and measures laws apply rather to weights and measures used in open sales, than to those employed by private individuals in their own houses, either for manufacturing purposes or otherwise, which are not reached by the present law; it only with regard to open sales by the public that the weights and measures used are now looked after and inspected?—That is so, but you will find that the amount bought by the public by weight proportionately speaking is a mere nothing. The things that we buy, gold chains, keepers, and such articles, we buy by weight, but we sell them according to our customers' fancy. Some of our customers will have them by weight, but the majority at so much the article; in the shops you will always find them sold at so much the article and not by weight. As I before remarked, in a shop it is really nothing that is sold by weight. I think I can positively say nothing, except plain silver spoons and forks, that is to say, solid ordinary spoons and forks and silver services, those are sold by weight.

3221. In fact the open sale in shops of gold and silver wares by weight is the exception and not the rule?—Quite the exception.

3222. (*Chairman.*) Silver dishes I presume are sold by weight?—When you get very fanciful designs they are not sold by weight.

3223. Are silver salvers and silver dinner plates sold by weight?—If they are plain; but if you have them very fanciful, the idea of charging by weight would make the consumer think that you were charging too much, because of course you must charge a very long price for extra workmanship, and therefore it is sold by the article in such cases.

3224. (*The Warden of the Standards.*) Are goods made of oxydized silver ever sold by weight?—No. Very few articles are made of oxydized silver; what you usually see in the shop windows is an oxydized deposit on copper. Very elaborate and expensive things in the way of oxydized silver goods are never sold by weight.

3225. (*Chairman.*) Are not considerable quantities of plate sometimes sold by auction?—Yes, second-hand plate.

3226. Its weight is generally advertised, is it not?—Yes, it is so.

3227. Do you understand that in those cases it is sold by the weight or by the piece?—In that case it is sold by weight; but the silver that is sold at auctions are usually things that I have mentioned, plain spoons and services, and things of that kind. When you come to fanciful silver spoons and forks, such as those you see in cases for presents, those are not sold by weight.

3228. (*Professor Miller.*) Are not silver cruet stands and things of that sort frequently strengthened by copper or brass?—I have known that to be done, but it is not commonly done. I only know of one case and that was at Oxford. A cruet stand was bought by a shopkeeper, at so many ounces, at so much; it was then found to be too thin at the bottom, and he sent it to Birmingham, and had an electro-plated bottom put to it, with a hole in the centre showing the Hall mark. It was then sold so many ounces, at so much, and it was afterwards discovered that the bottom of it was electro-plated; it was sent up to the Assay Hall, and there were a few remarks made about it. But it was afterwards found that it was sold so much silver, at so much, and that really was the weight of the silver that was in the article, not including the plated bottom; therefore there was no deception in it, or attempt at fraud.

3229. (*Chairman.*) In the remarks which you addressed to the Commission by letter you suggested, did you not, the possibility of a decimal subdivision of the avoirdupois ounce?—If a change is to be made, I should consider that that would be the one the trade would fall into most readily, taking the avoirdupois ounce as the unit, and then to be divided by tenths.

3230. Would your workmen and people of that class enter into the subdivision by tenths readily?—That I can hardly say. I think that with regard to the workmen, the system of pennyweights and grains is so perfectly understood, and they have been so much used to it, that they would not readily fall into any change.

3231. The Bank of England and the Mint, having the troy ounce, changed the pennyweights and the grains there by their own motion for the decimal subdivisions, as being more convenient for assays and for such purposes. In regard to sales, would it be more or less convenient for your purpose to have the decimal subdivision than the subdivision such as it is now?—For our sales it would be more convenient to leave it as it is, inasmuch as those who sell perfectly understand it.

3232. It is within the range of possibility that at some time the Government may make a change of our

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coinage from its present scale to a decimal scale, and the Government can do that, for they have the power of doing it if they think fit. In that case would it appear desirable to have the decimal subdivision of the avoirdupois ounce?—I should then say that if we are to have the decimal system in the coinage, and in other weights, it would be quite right to make it refer to us also.

3233. (*The Warden of the Standards.*) How low do you think that the decimal subdivision of the avoirdupois ounce should extend? The avoirdupois ounce, is, as you are aware, 437½ grains, and the 1000th part of that would be something less than half a grain. Do you think that that would be low enough for ordinary purposes if such a scheme were carried out?—Quite so.

3234. (*Chairman.*) That would be less than a penny in value in the gold coinage?—Yes, that would be quite low enough.

3235. (*The Warden of the Standards.*) In that case the use of grains would not be required, because there would be no definite integral relation between the fraction of the avoirdupois ounce and the grain?—No, grains would then become useless.

3236. Do you think that practically such a decimal scale would be more advantageous than the existing binary subdivision of the avoirdupois ounce and the further binary subdivision of the dram as suggested by the Astronomer Royal?—I believe so. In the binary subdivision, the lowest weight we should have would be very nearly two of our now troy grains. That would be low enough for the inferior qualities of gold, but for the better qualities I do not think it would be low enough.

3237. If it went one step further, to one-half of the 16th of the avoirdupois dram, how would that do?—That would be quite low enough; it would then be a shade less than one troy grain.

3238. Do you think that the decimal scale of subdivision would be more useful than the binary scale, supposing they were both extended to the same lowest weight?—I think the decimal system would be the preferable of the two, inasmuch as it would be so much easier for calculation.

3239. And also for manipulation by weighing?—Yes. I think the decimal system is to be much preferred to the binary division of the avoirdupois ounce.

3240. Is not that a strong argument for the substitution of the metric system for the troy scale, the metric system being altogether a decimal system?—I am only saying that it would be better to have the decimal system instead of the division you speak of, if a change is to be made. But everyone in the trade is so perfectly accustomed to the weighing which they have now by pennyweights and grains, that I do not think they would care for any change, for the simple reason that it would be a great amount of inconvenience, and the good to them I think they would quite fail to see.

3241. (*Chairman.*) Supposing the metric system were adopted, in going down by the successive tenths you arrive at the weight of a decigram, about equal to the weight of a grain and a half; would that be subject to the small inconvenience that you mentioned for gold of a high quality?—Yes, it would hardly be low enough.

3242. The present customary subdivision of the avoirdupois ounce is by sixteenths down to the dram and half dram; if any further subdivision were taken it would undoubtedly be desirable to have it by the binary scale, would it not?—Yes.

3243. So that probably you would think that if we engrafted the decimal scale into the avoirdupois weight it would be better, as you suggest, to take it from the avoirdupois ounce?—I should think so.

3244. Have you ever had any experience of the use of the metric system in the French form?—No, we have not. I have endeavoured to learn if it has been used by the bullion dealers in Birmingham, but they say that they have not used it. Some of the assays that we have are expressed decimally by the private assayers here.

3245. (*The Warden of the Standards.*) That is I presume by those who adopt the French millesimal system?—No; you can have it expressed as you please, in either what we call the party assay, that is, so much pure gold and silver to the 12 ounces troy, or you can have it expressed decimally, that is, its proportion to the standard.

3246. (*Chairman.*) Is that done by the London assayers for you?—I only know of one firm here that does it. The Assay Hall do not give you assays, they only assay for the satisfaction of themselves, and for stamping articles for the protection of the public.

3247. But would Johnson and Matthey for instance, give it you in either system?—Yes.

3248. Are there any other remarks which occur to you upon the subject of our inquiry?—I cannot at the moment think of anything else that will touch upon the subject.

The witness withdrew.

Adjourned.

APPENDIX TO THIRD REPORT.

PAPERS ON THE QUESTION OF THE ABOLITION OF TROY WEIGHT, AND THE SUBSTITUTION OF METRIC WEIGHT.

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APPENDIX TO THIRD REPORT.

APPENDIX I.

Paper delivered by the Master of the Mint, 6th March 1869.

Proposal to abolish Troy Weight, and substitute Metric Weight.

The use of Troy weights appears to be now confined to the Mint and Bank of England, the bullion trade, and jewellers. I have to propose that Troy weight should be abolished, and the metric system of weights established in its place.

It is in their relations with the bullion trade that the Mint and Bank are now required to employ Troy weight. In neither establishment would the change to metric weights be attended with difficulty. In the Mint the metric system has been already employed on the occasion of a large issue of copper "cash" to Hong Kong and China. Each of these small pieces weighed one gram; and accordingly 1,000 cash, which were equal in value to a dollar, weighed a kilogram. The convenience of the system for packing the coin was most obvious, 50 kilograms, or 50 dollars value being placed in each box.

The large bullion dealers, who reside chiefly in London, are already familiar with metric weights, their foreign business being very considerable. Their account keeping would be rendered uniform and simplified by the change.

Jewellers are, generally speaking, well informed, and their usual customers, it may be presumed, are of the educated class. The relation of jewellers to the assaying of gold and silver has already made them familiar with computations of some difficulty. The transition to the metric weights would be comparatively easy to them. The cost of new weights would be small, probably not more than 1*l.* in each business on an average.

It would be desirable further to require assays of the precious metals to be always expressed decimally, as is already done for the Bank of England. This is necessary from the present application of the grain and carat in stating assays. The decimal expression of composition divests the subject of all obscurity.

The advantage which would be immediately gained by this practical application of metric weights, would be the effective introduction of the system to the general notice of the public. It would probably also ensure the teaching of the subject in books upon arithmetic, even of the most elementary character.

The introduction of metric weights into pharmacy would possibly follow after no great interval of time. The metric system was indeed very nearly being adopted a few years ago, on the occasion of the transition from Troy to Avoirdupois weight. The enlightened character of the medical profession, and its thorough organization under the Medical Representative Council and the Pharmaceutical Society, would enable such a change to be made at any time with ease and effect, while its influence in diffusing widely a knowledge of the new system would be invaluable.

APPENDIX II.

Memorandum of the Astronomer Royal on the Proposition of the Master of the Mint.

It appears to me that it is impossible for the Commission to make any recommendation for the abrogation of Troy weight until they have inquired extensively into the practice and feelings of persons who at present use that system. If evidence should be taken, perhaps it might be desirable to call on auctioneers (who are frequently engaged in large sales, in which plate is estimated in ounces) as well as on manufacturers and vendors.

The number of persons who would be affected by the change from Troy weight is considerable.

Below is a statement of the numbers of firms engaged in trades making use of Troy weight in the Metropolitan District, as extracted from the London Directory:—

Assayers	9
Bullion brokers	8
Bullion dealers	36
Gold and silver beaters	80
Gold and silver casters	4
Gold and silver lacemen	23
Gold and silver mounters	24
Gold and silver wire drawers	14
Carried forward	198
Brought forward	198
Gold chain makers	39
Gold cutters	19
Gold swivel makers	5
Goldsmiths and jewellers	167
Melters of bullion	1
Pawnbrokers and silversmiths	355
Quicksilver merchants	3
Refiners, gold and silver	35
Sheffield and plated warehouses	10
Silver spoon and fork makers	14
Silver thimble makers	4
Silversmiths	149
Total	999

It would seem probable, therefore, that in the United Kingdom there are 6,000 or 7,000 tradesmen using Troy weight, and a far greater number of persons not tradesmen whose money transactions sometimes depend on it.

G. B. AIRY.

Royal Observatory, Greenwich,
8th March 1869.

APPENDIX III.

POINTS for CONSIDERATION with reference to the PROPOSAL of the MASTER of the MINT to abolish TROY WEIGHT and substitute compulsory METRIC WEIGHT.—Paper delivered by the Warden of the Standards.

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Proposal includes two distinct subjects.

The proposal includes two subjects which are distinct and should be considered separately.

Abolition of Troy weight.

The question of the abolition of Troy weight was considered by the Standards Commission of 1841, and in section G. appended to their report, some evidence will be found both for and against the expediency and practicability of its abolition. In their report (s. viii.) the Commission stated that they endeavoured to ascertain the possibility of removing the confusion caused by the existence of the two scales of Avoirdupois weight and Troy weight; the bad effects of the evil being greatly increased by the identity of the names of the pound and ounce in the two scales. They found that the troy pound was wholly useless, but considered that the troy ounce could not then be abolished without some difficulty; and that the remaining weights of the Troy and Apothecaries' scales might be temporarily tolerated (for certain substances only) as leading to no ambiguity. They thought it desirable that steps should be taken which might ultimately lead to the removal of the Troy scale, and with that view they proposed a decimal bullion scale, which was subsequently legalised in 1853.

Recommendations of Standards Commission, 1841.

And of 1854.

In the report of 1854 the Standards Commission further referred (s. 52) to the prospect of attaining the long desired simplification of the British system of weights by the entire suppression of Troy weight.

Troy weight used by apothecaries since legally discontinued.

Since these reports were issued, apothecaries' weight, which was based on Troy weight, has been legally discontinued under the authority of the Medical Act, 1858, (as stated in Paper I., p. 4,) and Avoirdupois weight only is now used for medicinal purposes. This alteration has removed not only the cause of much of the confusion which existed between the two scales, but also much of the difficulty of abolishing Troy weight.

Confusion caused by concurrent use of Troy and Avoirdupois weight.

It should be observed that although medicines were dispensed by the Troy scale, all medical and chemical articles, except those made up from medical prescriptions, were both bought and sold by Avoirdupois weight. A person asking for an ounce of magnesia was always sold an avoirdupois ounce and not a Troy or Apothecaries' ounce; the difference between the two being nearly as 7 and 8. But this practice was but little known to the customers, and continual difficulties and complaints were caused from persons attempting to make up their own medicines by Troy weight, after purchasing the ingredients by Avoirdupois weight.

Similar confusion is still to some extent caused by the use of the two scales. For instance, nitrate of silver is much used by photographers in quantities of troy grains, or drams of the old Apothecaries' weight. Persons buy an Avoirdupois ounce of nitrate of silver, weighing 437½ grains, and think they have been cheated in the weight when they find that they have not 480 grains for use, the weight of a troy ounce.

Nor is the use of Troy weight yet altogether practically discontinued as Apothecaries' weight. I have been informed by one of the principal chemists that prescriptions written previously to the issue of the new Pharmacopœia are still frequently required to be made up, and that some medical men continue to write their prescriptions in the old Apothecaries' weight.

The following information respecting the number of local standards of Troy weight, including decimal bullion weight, of Troy weights stamped by inspectors, and the number of tradesmen and manufacturers using Troy weight, as well as the weight of gold and silver plate annually chargeable with duty, may be laid before the Commission.

Number of copies of Standard Troy weights verified.

An ACCOUNT of the NUMBER of SETS of COPIES of STANDARD TROY WEIGHTS, and of the Number of Copies verified for the several Districts of Inspection in the United Kingdom since the passing of the Act 5 Geo. 4. c. 74. in 1824; distinguishing (1.) the number legally re-verified within the period prescribed by law, and in use; (2.) those stated to be in use, but not legally re-verified, as shown by the Returns from the Inspectors for the year 1866, or from the Records of the Standards Department; (3.) those verified in the Standards Department, and not stated in the Returns, thus appearing to have fallen into disuse.

COPIES of TROY STANDARDS.

Districts of Inspection.		(1.) Legally verified or re-verified.		(2.) Not legally re-verified.		(3.) Fallen into disuse.		Total.	
County.	District, Town, &c.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.
BUCKS	County	1	15	—	—	—	—	1	15
,,	Buckingham	—	—	—	—	1	15	1	15
CAMBRIDGE	Isle of Ely	—	—	—	—	1	15	1	15
CHESHIRE	Chester, City	—	—	1	15	—	—	1	15
CORNWALL	County	—	—	—	—	1	15	1	15
DURHAM	County	1	15	—	—	—	—	1	15
,,	Gateshead	—	—	1	15	—	—	1	15
ESSEX	Havering-atte-Bower.	—	—	—	—	1	15	1	15
GLOUCESTERSHIRE.	Several manors	—	—	—	—	3	45	3	45
HAMPSHIRE	County	—	—	—	—	15	225	15	225
,,	Basingstoke	—	—	1	15	—	—	1	15
,,	Portsmouth	—	—	1	15	—	—	1	15
,,	Winchester	—	—	1	15	—	—	1	15
KENT	County	1	15	—	—	—	—	1	15
,,	Dover	3	45	—	—	—	—	3	45
,,	Hythe	—	—	1	10	—	—	1	10
,,	Queenboro'	—	—	1	9	—	—	1	9
,,	Sandwich	—	—	1	10	—	—	1	10
LANCASHIRE	Liverpool	1	15	1	15	3	45	5	75
,,	Manchester	1	15	—	—	—	—	1	15
,,	Salford	1	15	—	—	—	—	1	15
,,	Wigan	—	—	—	—	1	15	1	15
LINCOLNSHIRE	Boston	—	—	—	—	1	15	1	15
MIDDLESEX	County	4	60	—	—	8	120	12	180
,,	London, City	2	30	—	—	—	—	2	30
,,	Founder's Company.	1	15	—	—	—	—	1	15
,,	St. Marylebone	—	—	—	—	1	15	1	15
,,	Westminster, City	1	15	—	—	—	—	1	15
NORFOLK	Norwich	1	15	—	—	1	15	2	30
NORTHUMBERLAND.	County	6	85	—	—	—	—	6	85
,,	Newcastle-on-Tyne.	—	—	1	12	—	—	1	12
OXFORDSHIRE	University of Oxford.	—	—	1	15	—	—	1	15
SHROPSHIRE	County	1	15	—	—	—	—	1	15
,,	Bridgnorth	1	15	—	—	—	—	1	15
,,	Oswestry	—	—	—	—	1	15	1	15
SOMERSETSHIRE.	Bristol, City	—	—	1	15	—	—	1	15
,,	Yeovil, Borough	—	—	1	15	—	—	1	15
STAFFORDSHIRE.	Lichfield, City	1	15	—	—	—	—	1	15
,,	Walsall, Borough	—	—	1	15	1	15	2	30
	Carried forward	27	400	14	191	38	585	80	1,176

Appendix III.—*continued.*

Districts of Inspection.		(1.) Legally verified or re verified.		(2.) Not legally re-verified.		(3.) Fallen into disuse.		Total.	
County.	District, Town, &c.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.
	Brought forward	27	409	14	191	39	585	80	1,176
Sussex - -	County Divisions	4	60	—	—	—	—	4	60
„ - -	Brighton, Borough.	—	—	2	25	—	—	2	25
Wiltshire -	Marlboro', Borough.	—	—	1	15	—	—	1	15
Worcester-shire.	County Divisions	—	—	9*	131	—	—	9	131
„ -	Worcester, City -	—	—	—	—	1	15	1	15
Yorkshire -	Bradford, Borough.	1	15	—	—	—	—	1	15
„ -	Leeds, Borough -	—	—	1	10	—	—	1	10
„ -	Richmond, Borough.	1	15	—	—	—	—	1	15
„ -	Sheffield, Borough	—	—	—	—	1	15	1	15
	Total for England	33	490	27	372	41	615	101	1,477
Wales.									
Caermarthen	Kidwelly, Borough.	—	—	—	—	1	15	1	15
Cardigan -	County - -	—	—	—	—	1	15	1	15
Glamorgan -	Cardiff, Borough	—	—	—	—	1	15	1	15
	Total for Wales	—	—	—	—	3	45	3	45
Scotland.									
Argyll - -	County - -	—	—	1	15	—	—	1	15
Ayrshire -	Kilmarnock, Burgh.	—	—	1	15	—	—	1	15
Clackmannan	County - -	—	—	1	15†	—	—	1	15
Cromarty -	County - -	—	—	1	15	—	—	1	15
Dumfries -	Dumfries, Royal Burgh.	—	—	—	—	1	15	1	15
Edinburgh -	Edinburgh, City	2	30	—	—	1	15	3	45
Fife - -	County - -	—	—	2	30	—	—	2	30
Lanark - -	Airdrie, Burgh -	—	—	1	15	—	—	1	15
„ - -	Glasgow, City -	1	15	—	—	—	—	1	15
Orkney - -	County - -	—	—	1	15	—	—	1	15
Renfrew -	County - -	—	—	1	15	—	—	1	15
„ -	Paisley, Burgh -	—	—	1	15	—	—	1	15
Stirling -	Falkirk, Burgh -	—	—	1	8	—	—	1	8
	Total for Scotland	3	45	11	158	2	30	16	233
Total for England - -		33	490	27	372	41	615	101	1,477
Total for Wales - -		—	—	—	—	3	45	3	45
Total for Scotland - -		3	45	11	158	2	30	16	233
Total for Great Britain -		36	535	38	530	46	690	120	1,755

* One set last officially re-verified 28 Nov. 1863.
† One set last officially re-verified 26 Nov. 1863.

There are no legal copies of standard Troy weights in use in Ireland.

Number of copies of standard bullion weights verified.

An Account of the Number of Sets of Copies of the Standard Decimal Bullion Weights, and of the Number of Copies verified for the several Districts of Inspection in the United Kingdom since the passing of the Act 16 Vict. c. 29. in 1853; distinguishing the number in use legally re-verified within the period prescribed by law; and those not legally re-verified; as well as those fallen into disuse.

Districts of Inspection.		Legally re-verified.		Not legally re-verified.		Fallen into disuse.		Total.	
County.	District, Town, &c.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.	Sets.	Standards.
Lancashire -	Liverpool, Borough.	—	—	2	62	—	—	2	62
„ -	Manchester, Borough.	2	62	—	—	—	—	2	62
Middlesex -	County - -	1	26	—	—	—	—	1	26
„ -	City of London -	—	—	1	31	—	—	1	31
Somerset-shire.	Bath, City and Borough.	—	—	—	—	1	31	1	31
„ -	Bristol, City and County of City.	1	31	—	—	—	—	1	31
Stafford-shire.	Lichfield, City -	1	27	—	—	—	—	1	27
Surrey - -	County District -	1	27	—	—	—	—	1	27
Warwick -	Birmingham, Borough.	—	—	2	62	—	—	2	62
Yorkshire -	Sheffield, Borough	1	31	—	—	—	—	1	31
Edinburgh -	Edinburgh, City	2	62	1	31	—	—	3	93
Dublin - -	City - - - -	—	—	1	31	—	—	1	31
Total for the United Kingdom		9	266	7	217	1	31	17	514

Number of Troy weights stamped by inspectors in 1866.

The number of Troy weights stamped by inspectors in the several districts of inspection in the United Kingdom during the year 1866 will be found in Abstract D. of the Returns from the Local Inspectors of Weights and Measures (see App. III. and IV. to Fourth Report). From these abstracts it may be seen that only 544 Troy weights and 355 decimal bullion weights were so stamped in eight districts of inspection in Great Britain, and that no Troy or bullion weights were stamped in Ireland.

Number of tradesmen, &c. using Troy weights.

Number of Tradesmen, Manufacturers, &c. using Troy Weights for Trade Purposes, taken from the Census Returns of 1861.

—	England and Wales.	Scotland.	Ireland.	Total.
Assayers - - -	93	1	—	94
Bullion makers - -	11	—	—	11
Diamond workers and dealers.	88	—	—	88
Fancy chain and ring makers.	161	—	—	161
Gold beaters - -	820	31	22	873
Gold pen makers - -	16	—	—	16
Gold and silver lace manufacturers.	292	—	3	295
Gold and silver wire drawers.	75	—	—	75
Gold and silver other workers and dealers.	130	—	43	173
Goldsmiths, silversmiths, and jewellers.	15,893	945	424	17,262
Guard chain makers -	1,156	—	—	1,156
Metallurgists - -	8	—	—	8
Metal refiners - -	1,694	—	—	1,694
Plated ware manufacturers.	2,036	58	57	2,151
Pawnbrokers - -	5,484	503	719	6,706
Quicksilver workers -	39	1	—	40
Silver smelters - -	34	—	—	34
Spoon makers - -	822	—	—	822
Watch and clock makers	20,757	1,699	975	23,431
Watch key makers -	44	—	—	44
Thimble makers - -	—	—	8	8
	49,653	3,238	2,251	55,142

Number of Troy weights in a set, and price.

There appear, therefore, to be not less than (in round numbers) 50,000 persons using Troy weights for trade purposes. A set usually supplied to gold and silver smiths, pawnbrokers, bullion dealers, &c., consisting of 9 cup weights, fitting into each other, of 32 ounces, 16, 8, 4, 2, 1, ½, and ¼, with a second ¼ oz., the price being about 15*s.* for an accurately adjusted set. Pennyweights and grains are sold separately at about 1*s.* per set. For the larger decimal weights, from 100 oz. to 1,000 oz., the highest price is 2*s.* 6*d.* per lb. Avoirdupois. It is worthy of notice that the material troy weights are thus sold by avoirdupois weight.

The largest set of Troy weights comprises—

11 weights, 128 oz. to ¼ oz.
4 „ 5, 3, 2, 1 dwt.
6 „ 12, 6, 3, 2, 1, ½ gr.

Total 21 weights.

Inoperative provisions of law for inspection of Troy weights.

The attention of the Commission has already been called to the fact of the general practice of the inspectors neither to stamp nor inspect Troy weights, as well as to the doubtful construction of the law as to stamping weights for trade purposes of other denominations than the official standards. It will be seen that there are now no official legal standards of 128, 64, 32, 16, 8, or 4 oz. troy; but it should be observed that the Founders' Company claim the right under their ancient charter to stamp and legalize all such weights, when made of brass. Reference to the paper on the Exchequer Standards, printed for Parliament in 1864 (p. 4), will show that the Troy standards of Queen Elizabeth, which were the legal official standards up to 1824, comprehended a nest set of Troy weights in binary subdivision from 256 oz. to ½ oz. There was no legal standard of 1 lb. Troy before 1824, nor does it appear that any single weight of 1 lb. troy has ever been in common use. It appears also that the alteration in the law in 1824, by the 5 Geo. 4. c. 74., and of the Exchequer Standards, has never been recognized by the dealers in or manufacturers of precious metals, so far as regards the series of Troy weights in use.

Appendix III.—*continued.*

Weight of gold and silver plate annually chargeable with duty.

1st Report of Inland Rev., p. 25.

The average amount of duty paid of late years in the United Kingdom upon gold and silver plate exceeds 60,000*l.*, of which about 2,000*l.* is paid in Scotland, and 1,000*l.* in Ireland. In 1868–9, the total gross sum produced was 65,678*l.* The duty on gold plate is 17*s.* per oz., and on silver, 1*s.* 6*d.*; but practically the duty on silver paid by the manufacture is only 1*s.* 3*d.*, as an allowance of one-sixth is made in consideration of the unfinished state of the wares when they are produced for the assay, at which time the duty is assessed. As by far the greater part of the duty must be received from silver plate, it may be calculated that the total weight upon which duty is paid annually approximates to 700,000 ozs. The only exemption from duty in the case of gold plate is that on watch cases. In silver, the list of exempted articles is a long one, and includes not only watch cases, but a variety of articles, and all silver wares not weighing 5 dwt. each.

Summary of reasons for abolishing Troy weight.

The following is a summary of the reasons, showing that the question of the abolition of Troy weight has now become a matter for the serious consideration of the Commission:—

That in the reports of the Standards Commission of 1841 and 1854, an opinion has already been expressed in favour of the simplification of the British system of weights by the abolition of Troy weight.

That Troy weight has since been legally discontinued for medicinal purposes, and Avoirdupois weight substituted, under the provisions of the Medical Act, 1864.

That it has been shown that throughout the United Kingdom only 8 counties and 13 cities and towns are furnished with legal copies of the Troy standards, and 2 counties and 5 cities and towns with legal copies of the bullion standards.

That during the year 1866 no more than 544 Troy weights and 355 decimal bullion weights were submitted for stamping to the inspectors of weights and measures throughout the United Kingdom, in 8 districts of inspection only in Great Britain.

That the legal provisions for stamping and inspecting Troy weights have been practically inoperative.

That the use of Troy weights is now confined to dealers and manufacturers in gold and silver.

But considering that it has been shown there are probably more than 50,000 persons in the United Kingdom who now use Troy weights, and a far greater number of persons not tradesmen whose money transactions sometimes depend upon Troy weight, it is obviously proper to act upon the Chairman's opinion, that we cannot make any definite recommendation for the abolition of Troy weight without having first inquired extensively into the practice and wishes of persons who at present use that scale.

Compulsory substitution of metric weight. This question to be deferred till that of Troy weight be determined.

With respect to the second question proposed by the Master of the Mint, the compulsory substitution of Metric weight for Troy weight, its consideration must necessarily be deferred until the question of the abolition of troy weight is determined. The Master of the Mint in his paper states no ground for abolishing Troy weight, further than its use being confined to certain classes, his arguments tending only to show the advantages and ease of substituting the Metric system for it. In the event of the abolition of Troy weight being determined upon, it may be worth considering whether it is expedient exceptionally to enforce the use of the Metric system upon one class only of persons engaged in business, and whether the obligation to change their weights, and the option to choose between Metric and Imperial weights, may not be a fair test between the two systems.

H. W. CHISHOLM,
Warden.

Standards Department,
11th March 1869.

APPENDIX IV.

Copies of Letters to the Master of the Mint.

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1.—Dr. Sharpey, Member of the General Medical Council, to the Master of the Mint.

Hampstead,
March 13, 1869.

My dear Graham,

When the first edition of the British Pharmacopœia was about to be published by the Medical Council, it had been proposed by the first Pharmaceutical Committee to introduce a new grain weight, dividing the avoirdupois ounce into 480 grains. This was objected to in various quarters, and by the majority of the Council itself, and a meeting was held in Oct. 1862 to decide the matter. At that meeting no one persisted in recommending the new grain, but a motion was made by Christison and seconded by Andrew Wood to "adopt the French decimal system of "weights and measures as the basis for the standards of "weights and measures of the British Pharmacopœia." This proposal was negatived. The numbers on the division are not recorded in the Minutes, but I remember that after the matter had been fully discussed, the proposal for the decimal system had scarcely any supporters; I almost think that the seconder divided against it, but I cannot state this with any authority.

When a new edition (the present) was in preparation, a letter was read to the General Medical Council, on the 29th May 1866, from the Metric Committee of the British Association, signed by Sir J. Bowring and Mr. James Yates, recommending the introduction of the Metric system side by side with the Imperial. On this a resolution was adopted unanimously, on the motion of myself, seconded by Dr. Apjohn, as follows:—

"That the General Medical Council are not prepared to "adopt, in its full extent, the suggestion of the Metric "Committee of the British Association, but the Council "will direct that a complete comparative table of Metric "and Imperial weights and measures, with instructions for "their mutual conversion, shall be inserted in the forth-"coming edition of the British Pharmacopœia."

This was accordingly done, and further, the instructions for the preparation and use of "test solutions for volumetric estimations" at the end of the book were drawn up on both systems.

This is all I can find or remember of the proceedings of the General Medical Council in the matter of the Metric weights and measures.

Yours, &c.
W. Sharpey.

T. Graham, Esq.,
&c. &c.

2.—Dr. Redwood, Professor of Chemistry to the Pharmaceutical Society, to the Master of the Mint.

39, Russell Square, W.C.
March 13, 1869.

My dear Sir,

As far as I have yet been able to ascertain it does not appear that the Metric system of weights and measures has ever come under the consideration of the Pharmaceutical Society in council or at public meeting, in such a way as to result in a division showing the numbers for and against its adoption, either partially as applied to pharmacy, or generally as a substitute for the weights and measures now in use. Several times, however, the subject has been discussed, and on these occasions the Metric system has had warm advocates, who have expressed opinions to the effect that there would be no great difficulty, and much practical advantage, in adopting it in pharmacy instead of

Appendix IV.—*continued.*

our present imperfect system. I think I may say that almost the only difference of opinion manifested at such discussions has been as to the time when and the way in which the change should be made, for all admit that sooner or later it is inevitable. I have observed a gradual but decided increase in the number of those who are prepared to sanction its speedy adoption, notwithstanding the difficulties which stand in the way. I must confess that I do not consider these difficulties small, while so large a section of the body of chemists and druggists, to whom the public trust the safety of their lives, remain very imperfectly educated. From henceforth, however, this defect will gradually disappear as the old stock die off, and a better class of educated men take their places. With these, as far as they are themselves concerned, the adoption of the Metric system in pharmacy would, I think, involve no difficulty. It is included in the subjects of examination in the Pharmaceutical Society, and is used by the students in all analytical operations. It is also used in the Pharmacopœia for volumetric testing. In this way its application to medicine is being provided for, and its complete adoption is only a question of time. This indeed is foreshadowed in the preface to the Pharmacopœia. What, it appears to me, is most wanted is the means of preparing men for the change by introducing familiar objects which may serve as standards of comparison by which to estimate the values of the new measures. We have such with reference to the grain, the foot, the yard, &c., but those unaccustomed to the use of the Metric system fail to form any definite ideas of the quantities expressed by the gram or the centimeter. If we had a gram coin and a centimeter marked on every postage stamp, it would do much towards supplying definite ideas where none at present exist. The wide diffusion of such ideas, and the gradual process of making men practically acquainted with the system, by having it introduced whenever the change can be made with least inconvenience, seem to be the methods most likely eventually to bring about an entire change.

If you think it desirable I could have the subject discussed at the next meeting of our society, the beginning of next month, with the view of eliciting the expression of opinion upon it.

Believe me, &c.

Thomas Graham, Esq., &c. &c. — T. Redwood.

3.—F. D. Mocatta, Esq., to the Master of the Mint.

12, King's Arms Yard, E.C.
March 17, 1869.

My dear Sir,

Since I had the pleasure of seeing you on Monday I have been thinking over the subject of the substitution of the Metric for Troy weight in gold and silver, and have also asked some of the leading importers and exporters to express their views on the subject. It appears to me that the large and frequent contact with France and other continental countries, has rendered the houses who have the largest dealings in gold and silver familiar with the expression of millièmes of assay and kilogrammes of weight. Especially as regards reports of assay, the transition would be but small, since for some years past it has always been customary to give the assayer's report in millièmes as well as in the present denominations of carats, grains, or pennyweights. The decimal fraction, however, brings the report to a rather nearer point than the system at present in vogue, and this being the case to the slight benefit of the seller of such gold or silver, the trifling gain hitherto existing on the reports of the qualities of such metals exported to the Continent would cease to be obtained, since these operations are conducted at a remarkably small per-centage of profit. Even this little difference would to a certain degree prejudice the operation, and thus the exporters would naturally prefer retaining the system as it now is, although they would not be likely to offer any resistance to the change proposed.

The question of the introduction of the gramme, with its multiples and divisional parts, as a measure of weight, is at first sight a measure of no apparent difficulty, beyond that of accustoming those who deal in the precious metals to a strange system of weights and a new form of phraseology, a process which again is to some extent already accomplished among the large foreign houses, through whose hands the greater proportion of the gold and silver which comes into the country passes.

There are, however, some difficulties which are not apparent at the first glance. In the expression of the prices of the metals, the quotations who have to represent the actual value of a kilogramme of gold or silver, instead of that of an ounce, and thus the price of bar gold, 77*s.* 9*d.* per ounce standard, would be transformed into the rather unwieldly quotation of 124*l.* 19*s.* $8\frac{67}{100}$*d.* per kilogramme standard, and that of silver, say $60\frac{1}{2}$*d.* per ounce standard, would be transformed into 8*l.* 2*s.* $1\frac{12}{100}$*d.* per kilogramme standard. The slight change of price of $\frac{1}{4}$*d.* per ounce in gold would be represented by $8\frac{4}{100}$*d.* per kilogramme, and of $\frac{1}{8}$*d.* per ounce in silver by $4\frac{2}{100}$*d.* per kilogramme. The larger figures would probably conduce to a greater closeness in the operations, which, though perhaps more troublesome to those concerned, would not be of any actual detriment to the trade. The change of quotations of price, however, would be one which would have to be acquired with some difficulty by those accustomed to the smaller and consequently simpler figures hitherto used, and to the slight fractions which indicate as a rule the advance or decline in prices.*

Before quitting this important subject, I would ask whether it be proposed to calculate the values of gold and silver as "fine" (1,000 millièmes), as in France, or as heretofore as "standard," viz., ·925 in silver, and ·91666 in gold; also, if the latter system, so much per kilogramme standard, whether the present standard expressed by so large an array of decimals is to be maintained, or whether it be likely that the standard will be slightly altered so as to be expressed by not more than three figures. I am aware that the slightest alteration is fraught with difficulties, but the present point is certainly a cumbersome one to express in decimals.

In conclusion, I must remark that I have confined my observations to the larger operations in gold and silver, of which I can alone presume to speak from my own knowledge, but there are a mass of industrial pursuits to a larger or lesser degree concerned in the use of the precious metals. To say nothing of gold and silver smiths and jewellers of greater or lesser pretensions through the whole country, there are the wire drawers, gold and silver leaf manufacturers, watch makers, platers, gilders, and various others, forming a numerical mass immensely greater than those to whom I have alluded in my remarks, to most of whom the change in expression of assay and of weight, would form a source of considerable confusion for a long time to come, and naturally be a subject of complaint, although no doubt even with these parties custom would gradually reconcile them to the change.

I dare say there are other points to be considered besides those which have occurred to me, but I have, I fear, already wearied you with length of my communication.

I remain, &c.

The Master of the Mint, &c. &c. — F. D. Mocatta.

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* It may be replied to this that the larger denomination of weight, the kilogramme, and the consequently larger fractions to indicate either a price or an alteration in price, have been in use in France and other countries for so many years; but it must be remembered that in France, &c., gold and silver have a fixed price, with a fluctuating premium, which alone is subject to variation, and is consequently compassed in a few figures. The introduction of this system here would be a change which would lead to wider consequences than are likely to be contemplated or than I am here called upon to consider.

APPENDIX V.

Further Paper by the Warden of the Standards, stating Acts of Parliament in which Troy Weights are recited.

On 30th March 1869, Mr. Prideaux, clerk to the Goldsmiths' Company, called, by appointment, at the Standards Office. He said that the Commission would doubtless not recommend the abolition of Troy weight, which had been so long established in this country and was still used by so many persons, without sufficient grounds and due consideration for the practical consequences; that to change a system which had so long prevailed and was so firmly established in the commerce of the country without an adequate *practical* result, would be very much like making war *for an idea*. With regard to the Goldsmiths' Company, that their operations were based on the Troy ounce under special Acts of Parliament, and therefore it would be necessary if Troy weight were legally abolished that special provision should be made by statute to enable other weights to be substituted; in such case, it must be obvious that a decimal scale would be the best. He had nothing further to say upon the subject, except that he would gladly give any assistance in stating the Acts of Parliament bearing upon the question. He quite concurred in the propriety of calling for the views of the principal manufacturers and dealers in gold and silver, who are the persons most interested.

The most important Acts under which the Goldsmiths' Company assay and stamp manufactured articles of gold and silver were stated by Mr. J. Lane, accountant in the Assay Office, in his evidence before the Mint Commission, 1849, Q. 1336. Those reciting Troy weights are as follows:—

Acts reciting Troy Weights.

Act 12 Geo. 2. c. 26. (A.D. 1739) for the better preventing frauds and abuses in gold and silver wares.

Recites previous Act.

Sect. 1. Fineness of gold wares limited to 22 carats fine gold in lb. troy, and silver 11 oz. 2 dwt. fine in lb. troy.

Sect. 6. Wares not weighing 10 dwt. not to be stamped.

Sect. 13. Assay prices in Goldsmiths' Hall.
Gold weighing 30 oz. and under 2*s.* 6*d.*
„ 30 to 50 oz. 3*s.* 6*d.* and so on in proportion.

Sect. 15. Silver plate, 4 lbs. troy or less 5*d.*
„ above 4 lbs. troy, or less, diet of 10 gr. per lb.

Sect. 18. Same price at York, Exeter, Bristol, Chester, Norwich, and Newcastle-on-Tyne.

Act 24 Geo. 3. c. 53. (A.D. 1784) for granting certain duties on gold and silver plate.

Sect. 1. Duties on gold plate, 8*s.* per oz. additional, and proportionally for any greater or less quantity to be paid by the importer, or by the maker or worker.
Duties on silver plate, 6*d.* per oz. additional.

Sect. 2. Duties on plate made in Great Britain under Commissioners of Stamps.

Sect. 3. Duties on plate imported in Great Britain under Commissioners of Customs.

Sect. 4. Gold and silver manufacturers to send plate or wares for assay and marking to Goldsmiths' Hall, and other specified places, with a note specifying the kind of plate, weight, duty, &c.

Sect. 5. Duties to be paid previous to marking to Goldsmiths' Company, &c., who shall be accountable to His Majesty.

Sect. 7. Allowance, $\frac{1}{3}$th for goods in a rough state; no allowance on plate less than 1 oz. Troy.

Sect. 11. Duty allowed as drawback on exportation.

By various other Acts, total duty 17*s.* per oz. on gold and 1*s.* 6*d.* per oz. on silver plate.

Act 38 Geo. 3. c. 69. (A.D. 1798) for allowing gold wares to be manufactured at a lower standard.

Sect. 1. Gold may be manufactured 18 carats in. lb. troy.

Act 6 & 7 Wm. 4. c. 69. (1836) to fix the standard qualities of gold and silver plate in Scotland.

Sect. 1. No goldsmith to work gold plate of less fineness than 18 carats of gold in the lb. Troy.

Act 6 & 7 Wm. 4. c. 69. (1836), &c.—*cont.*

Sect. 3. No goldsmith to work silver plate of less fineness that 11 oz. 2 dwt. in the lb. Troy.

Sect. 4. Rates on assay per oz.; gold 1*s.*, silver 1*d.*

Sect. 5. 8 gr. for every lb. Troy for assay.

Act 7 & 8 Vict. c. 22. (1844) for preventing frauds in marking gold and silver wares.

Sect. 5. No addition to be made to any marked wares exceeding 4 oz. to the troy lb. without being re-marked and duty paid.

Sect. 15. Recites marking of gold of standard in fineness of 22 carats of fine gold in every lb. troy, and silver 11 oz. and 2 dwt.

Act 17 & 18 Vict. c. 96., for allowing gold wares to be manufactured of a lower standard, &c.

Sect. 1. Her Majesty, by Order in Council, from time to time to allow any standard not less than $\frac{1}{3}$rd fine gold. (No weights specified in the Act.)

Acts relating to Gold and Silver Coin and Bullion.

Act 56 Geo. 3. c. 68.

Sect. 2. Repeals provisions of 7 & 8 Will. 3. c. 1. as to weight and fineness of silver coin.

Sect. 4. Silver bullion to be coined of a standard and fineness of 11 oz. 2 dwt. of fine silver and 18 dwt. of alloy in the lb. troy, and in weight after the rate of 66*s.* to the lb. troy.

Sect. 9. Silver bullion to be coined of a standard of fineness of 11 oz. 2 dwt. of fine silver and 18 dwt. of alloy in the lb. troy, and in weight after the rate of 66*s.* to the lb. troy, of which 62*s.* lb. troy of standard silver to be delivered to the party bringing the bullion, and 4*s.* per lb. troy retained for assaying and coinage.

Sect. 10. Application of 4*s.* per lb. Troy.

Sect. 11. Weight, fineness, and remedy of gold coin, as in Mint indenture.

Extracts from Mint Indenture.

(*See Copy of Mint Indenture, Mr. Chisholm's Report on Coinage*, 1866, p. 25.)

(P. 26.)—Weights of silver coinage recited, as in Act 56 Geo. 3. c. 68.

(P. 27.)—Gold coinage.—1,869 half-sovereigns to be coined in 20-lbs. weight Troy of standard gold;
934½ sovereigns to be coined in 20-lbs. weight Troy of standard gold;
and so in proportion to every 1-lb. Troy.
Every lb. weight Troy of gold coins = 46*l.* 14*s.* 6*d.*
And in fineness 22 carats of fine gold and 2 carats of alloy in the lb. weight Troy.

Silver coinage.—$13\frac{1}{5}$ crowns - } in the lb. weight Troy of standard silver.
$26\frac{2}{5}$ half-crowns }
66 shillings - }

(P. 27.)—Silver coinage.—132 sixpences } in the lb. weight Troy of standard silver.
198 fourpences }
264 threepences }
396 twopences }
792 pence }

(P. 28.)—Mint remedy for gold coinage, 12 grains in the lb. weight Troy of standard gold.
„ „ 20 grains in the lb. weight Troy of standard silver.

Appendix V.—*continued.*

EXTRACTS OF EVIDENCE BEFORE THE ROYAL MINT COMMISSION, 1849.

Mr. W. Miller, of the Bank of England.

Q. 1296.—The standard weight of one sovereign issued from the Mint is 5 dwts. 3·274,478, &c. grains.

Q. 1297.—The standard weight of one sovereign (=123·274,478 grains) is nearly 123·274 grains, and the lowest weight at which a sovereign is current by law being 122½ grains, the difference is nearly 0·774 grain.

Q. 1298.—The remedy stated in the Mint indenture being 12 grains in the lb. Troy = 0·257 grain nearly in each sovereign.

Q. 1298.—A sovereign just within the remedy is 0·518 grain nearly above the lowest weight of a current sovereign.

Further information respecting the British coinage, and its connexion with Troy weight, will be found in a Paper by the Master of the Mint appended to the Report of the International Coinage Commission, 1868, p. 228.

The Mint price of standard gold is at the rate of 3*l.* 17*s* 10½*d.* per oz. Under the provisions of the Bank Act, 7 & 8 Vict. c. 44., the Bank pay on demand for gold bullion at the rate of 3*l.* 17*s.* 9*d.* per oz. of standard gold.

In the event of the abolition of Troy weight, it would be requisite to specify by law the equivalent weights to be substituted for the above mentioned weights now legalized by statute. As to the question of the substitution of Metric weight, it is important to consider what equivalent Metric unit could be substituted for the Troy ounce, in relation to the duty on gold and silver plate, and the Mint and Bank prices of standard gold.

Standards Office, 5th May 1869. H. W. CHISHOLM, Warden.

APPENDIX VI.

COPIES of LETTERS to the WARDEN of the STANDARDS.

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1.—From Mr. ATTENBOROUGH.

SIR, 19, Piccadilly, April 3, 1869.

I AM quite of opinion that the adoption of the Metric system of weights would be of great advantage to pawnbrokers, silversmiths, and jewellers, as it would very much facilitate their calculations and the accuracy of their definitions. I should be very willing to give evidence upon the subject. I am, &c.

R. A. ATTENBOROUGH.

H. W. Chisholm, Esq.

2.—From Messrs. ELKINGTON & Co.

SIR, Electro-plate Works, Newhall Street, Birmingham, April 16, 1869.

THE compulsory substitution of Metric weight for Troy weight would no doubt be attended with considerable trouble and inconvenience for the first year or two, but as far as our operations are concerned we can see no practical difficulty in the way, and the ultimate advantage of the system is so manifest that we should strongly recommend its adoption.

We are, &c.

H. W. Chisholm, Esq., Warden of the Standards. ELKINGTON & Co.

3.—From BANK OF ENGLAND.

SIR, Bank of England, May 13, 1869.

I AM directed by the Governor of the Bank to acknowledge the receipt of your letter of the 23rd March, inclosing papers having reference to a proposal which has been submitted to the Standards Commission by the Master of the Mint, for the substitution of Metric weight for Troy weight, and for the adoption of the Millième system of reporting assays in bullion transactions; and asking for information as to the views of the Bank of England upon the subject.

I am to state in reply that the Governor, while he abstains from offering any opinion on the part of the Bank as to the expediency or otherwise of the proposed change, especially as it might affect the basis on which the sovereign is issued as the unit of value, does not apprehend that, as regards the mere working of a metric system, any serious difficulty would attend the adoption of a well-considered scheme of the kind in the bullion operations of the Bank, provided that the concurrence and co-operation of the bullion trade were at the same time secured.

I am, &c.

H. W. Chisholm, Esq., Warden of the Standards. HAMMOND CHUBB, Secretary.

APPENDIX VII.

QUESTIONS upon the PROPOSED ABOLITION of TROY WEIGHT and SUBSTITUTION of METRIC WEIGHT, with ANSWERS.

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1.—PROPOSED QUESTIONS.

ABOLITION OF TROY WEIGHT.

1. Are Troy weights used exclusively in your business, or Avoirdupois weights also?

2. Are decimal bullion weights ever used by you?

3. Have you any knowledge of their being used in the trade

4. Has, in your experience, any confusion arisen from the concurrent use of Troy and Avoirdupois weights?

5. Have you any objection to the abolition of Troy weight?

6. Do you consider it would be objectionable to the trade generally?

7. Can you state how far the abolition of Troy weight would cause inconvenience to customers?

Appendix VII.—*continued.*

8. If abolished by law, what period would be convenient to the trade to be fixed when Troy weight should be declared illegal?

Substitution of Metric Weights for Troy Weights.

9. If Troy weight was abolished, would you prefer the substitution of metric or avoirdupois weights?

10. We understand that the Troy ounce is now the unit of weight for gold and silver wares, have you considered, in the event of its abolition, what unit would be the most convenient to be substituted?

11. Are you engaged to any extent in your business in foreign trade transactions, and if so would not the substitution of metric weights be so far advantageous?

12. Can you give an opinion how far this point would affect the trade generally?

13. Have you considered the question of the compulsory substitution of metric weights for troy weights?

14. Can you state whether or how far the compulsory substitution of metric weights for troy weights would be acceptable or objectionable to the trade generally?

Inspection of Troy Weights.

15. Have your weights and balances ever been inspected by an authorized inspector of weights and measures?

16. Do you know any reason why troy weights or weights used by dealers in gold and silver wares, together with their balances, should not be subject, like those of other trades, to the examination of inspectors?

17. Have you any other observations to lay before the Commission?

2.—Answers from Messrs. Hennell & Sons.

Abolition of Troy Weight.

1. Troy weights are used exclusively in our business.

2. Decimal bullion weights are never used by us.

3. We have no knowledge of their being used in the trade.

4. In our experience not the slightest confusion has arisen from the concurrent use of troy and avoirdupois weights.

5. We have great objection to the abolition of troy weight.

6. We consider it would be objectionable to the trade generally. Much of our prices with our work-people are per ounce, and a fresh scale of prices would be sure to lead to higher prices, besides causing great confusion with them and more calculation.

7. As we only manufacture wholesale, we are not in a position to state how far the abolition of troy weight would cause inconvenience to customers.

8. If troy weight should be abolished by law, from 10 to 20 years should be fixed as the period when the use of troy weight should be declared illegal.

Substitution of Metric Weights for Troy Weights.

9. If troy weight were abolished, we should prefer the substitution of avoirdupois weight.

11. In our business we are not engaged to any extent in foreign trade transactions.

13. With regard to the question of the compulsory substitution of metric weights for troy weights, we consider the alteration would most seriously interfere with manufacturers, especially with their workmen, and entail an entire alteration in all calculations.

14. The compulsory substitution of metric weights for troy weights would be objectionable to the trade generally.

Inspection of Troy Weights.

13. All goods, if sold by weight, being always weighed by the purchasers in the trade, renders it quite unnecessary for any inspection of the weights of wholesale manufacturers.

Robert Hennell & Sons.

14, Northumberland Street,
26th May 1869.

3.—Answers from Messrs. Hunt & Roskell.

Abolition of Troy Weight.

1. Troy weights only are used in our business, excepting for pearls and precious stones; avoirdupois weights are never used.

2. Decimal bullion weights are never used.

3. We have no knowledge of their being used in the trade.

4. Persons have occasionally sent us the weight of their silver in avoirdupois weight, but this has led to no confusion.

5. We have no objection to the abolition of troy weights.

6. We consider this or any other change would be objectionable to the trade generally.

8. We consider that 10 years is the shortest period which should be fixed for the abolition of troy weight.

Substitution of Metric Weights for Troy Weights.

9. If troy weight were abolished, we should prefer the substitution of metric to avoirdupois weight.

10. The troy once is the unit of weight for gold and silver wares. We have not considered what would be the most convenient to be substituted in the event of its abolition, and do not feel competent to do so. If the French system be perfect, why not adhere to that?

11. We do little comparatively now in foreign trade; formerly we did to the extent sometimes of 100,000*l.* in a year, principally in jewelry, but in plate only we have done business to the extent of 30,000*l.* in a year, in both largely, and the latter principally with Russia. We have not sold by weight but by the piece, executed to drawings; we have, therefore, not been concerned in weights or system of weighing. In shipping to Russia, we declare the weight of silver in troy ounces, and total weight of packages, glass, &c. &c., in avoirdupois.

12. We do not consider that the substitution of metric weights would be any disadvantage to the trade generally, but we believe the change would be objected to as causing inconvenience.

13, 14. We consider that the compulsory substitution of metric weights would be objectionable to the trade generally, simply for reasons before explained, that it would occasion trouble and inconvenience.

Inspection of Troy Weights.

13. Our weights and balances have never been inspected by authorized inspectors; we have them periodically inspected.

16. We feel that the inspection of our weights and balances by inspectors would be highly objectionable, as derogatory to our position. So strongly do we feel on this point that were we subjected to such annoyance, we would discontinue selling by weight altogether rather than submit to it. We now sell very little by weight, although we sometimes quote it when asked cost per ounce.

156, New Bond Street,
29th May 1869.

Hunt & Roskell.

4.—Letters from Mr. Willoughby, silversmith, &c., Windsor, in reply to Mr. Chaney.

27, High Street, Windsor,
October 19, 1869.

Sir,

Yours to hand, which I will do my best to answer.

Query 1. Is gold and silver ware bought and sold wholesale by weight or by the piece?

Gold and silver plate, chains, and solid Hall-marked rings are sold at so much per oz., charging a certain sum on each article for fashion. Example.—Suppose buying gold chains, 18 carat, say six, at the same quality gold, but various patterns and prices for fashion.

	£	s.	d.
Gold chains, weight, 8 ozs. 15 dwts. at 80*s.* -	35	0	0
Fashion, 1 at 35*s.*, 25*s.*, 30*s.*, 42*s.*, 23*s.* 19*s.* 6*d.*	8	14	6
	43	14	6

All fancy rings, brooches, bracelets, lockets, studs, pins, earrings, &c. are usually sold at per article, but of course this is guided by the value of stones or gold being added to the cost of making. It would be most inconvenient in buying, to weigh the latter articles, as they are liable to damage in the weighing, besides a loss of time. A practical man can, by feeling a brooch or locket, &c., in his hand, tell very close to its actual value; this is more acquired by constant observation and a retentive memory than by anything else. Silver plate is always sold at per oz., charging fashion, as shown in example.

Query 2. Are precious stones bought or sold by the carat, grain, or how?

Appendix VII.—*continued.*

Diamonds are valued by the weight, but there can be no standard for the price per carat, as although one stone may be worth 18*l.* per carat, another the same size might not be worth more than 5*l.* For instance, I take a diamond, and having examined it with my eye-glass, seeing if quite pure, or off coloured, or flawed, I say this "stuff" is worth so much per carat, and having ascertained the weight get at the price. This of course can only be done with loose diamonds. When buying a manufactured article, such as a diamond brooch or ring, the weight must be guessed, or dependence placed on the respectability of the manufacturer; such stones as emerald, sapphire, amethyst, topaz, pearls, &c., are bought and valued according to size and beauty of colour. The only real standard for their value being what they will fetch, and the man is the best judge who has the most knowledge on that point.

Query 3. A manufacturer is not obliged to have his gold assayed by the Goldsmiths' Company.

If I send a bar of gold to my manufacturer (say my own meltings), which would consist of various qualities, for sale, he will cut a small piece off and send it to be assayed, and by knowing its worth per oz., will buy it by the assay of the small piece. I should, however, advise you to apply to the Goldsmiths' Company, as it would be impossible for me to give such information as they on the latter subject.

A dealer in plate always sells by weight, whether new or second hand.

I hope I have written enough to guide you, and I trust you will understand my mode of explaining the subject.

I am, &c.

H. J. Chaney, Esq. WILLIAM WILLOUGHBY.

27, High Street, Windsor,

SIR, November 22, 1869.

IN reply to your letter, I beg to return my thanks to the gentlemen of the Commission for the invitation to attend, and regret that Friday is a day on which it is impossible for me to leave my business, as I am engaged at Windsor Castle.

I do not think my personal attendance would be of any advantage, as the little information I am possessed of would not help much to solve the question, but I would here venture to make a few remarks, founded more on practical knowledge than a theoretical training.

I am not surpised if the trade in general should be against any innovation of their present troy weight, though they are offered in its place a simpler and better mode. The reasons are many.

In the first place, having become accustomed to troy weight, and finding it answers every purpose, they shut their eyes to a proposed change, not only because it would involve some two or three hours' study, but also an immediate expenditure of several shillings in replacing the new weights for the old ones.

This of course applies to the manufacturers and dealers, who as a rule are more intelligent than the workmen, and who ought readily to master the simple form of decimals, seeing that they are already expert in the theory of calcuating their profits or loss at "so much per cent."

With regard to the workmen (the truth must be admitted) in our business, the most practical of them are rarely educated (in the common acceptation of the term).

I could instance men of extraordinary ability as workmen who can scarcely write, yet they possess from practical experience, a knowledge of their business, that might well be put in the balance as a proof of application, against the acquirements of a scholar.

Such a class of men I have generally found wedded to their old customs, and their appeal would be loud and strong ere they suffered themselves and their troy weight to be divorced.

I am not of opinion, that as regards the general public, they would be benefited by the alteration. Most people understand the meaning of an ounce troy, and its subdivisions into pennyweights and grains, and I conclude the class of people not so enlightened, would be equally in the dark under the new system.

Another important thing to remember is, our wares are mostly retailed at per article without reference to weight. I mentioned in my former communication several articles where, in the wholesale trade, weight was quoted, and I may now add, that even in those goods, the question of weight is not always asked by the retail customer, though every respectable trader is at all times willing to state weight and quality.

It would be a benefit to the trade if an official examination of weights took place, as in our business we require exactness for our own welfare, seeing that we use our own weights both for buying and selling, and so much interested is every goldsmith in having them correct, that if a doubt arose he would cease to use them.

There is perhaps no trade more exact in the matter of weights.

The question, in my humble opinion, involves either a benefit or otherwise to the trade, or to the general public. If it is simply our trade considered, the general verdict would be that the troy weight was not guilty.

If the public are considered, I would most respectfully suggest that they should be first initiated in the mysteries of decimal coinage, which would be the stepping stone to a general appreciation of the metric system in its widest sense.

With many apologies, if I have intruded with my ideas without being questioned on the particular points I have mentioned.

I am, &c.

H. J. Chaney, Esq. WILLIAM WILLOUGHBY.

5.—From Messrs. SLOANE & CARTER, wholesale silversmiths, Birmingham, in reply to Mr. CHANEY.

Mr. CHANEY to Messrs. SLOANE & CARTER.

7, Old Palace Yard,

GENTLEMEN, November 29, 1869.

I AM desired by the Chairman of the Standards Commission to acknowledge and thank you for your letter of the 25th instant, stating your readiness to afford information on the subject of the proposed abolition of troy weight.

It may perhaps save Mr. Carter, junr. the trouble of coming up to London, to give his evidence before the Commission, if you will be kind enough to furnish answers to the following questions; as well as to give any further information upon the subject, either within your own knowledge, or that you can procure from other large manufacturers, or from retail dealers.

I would premise that in the answers to these questions it is desirable that a distinction should be drawn, so far as they may affect, (1.) Wholesale dealers in gold and silver wares, as regards transactions between themselves and retail dealers; (2.) As between manufacturers and their workmen; (3.) As between retail dealers and the public in open sales. The two first involve dealings more of a private and the latter of a public character.

The main questions are,—

I. Whether, with a view to the simplification of the system of weights in this country, it is not expedient to abolish troy weight, now used for weighing the precious metals only, and to substitute avoirdupois or metric weight, considering that the metric system of weights and measures has been recommended by the Standards Commission, in their Second Report, presented to Parliament in 1869, to be legalized in this country.

II. Whether there is any practical objection on the part of those now using troy weights for trade purposes, which may deserve consideration of the Standards Commission.

III. How far the substitution of metric weights for troy weights would be acceptable to the retail trade.

IV. Or, whether the substitution of avoirdupois weights would be preferred; by the use of the dram as the lowest ordinary weight for silver, &c., and by a binary subdivision of the dram to $\frac{1}{16}$th part for gold, as suggested by the Astronomer Royal in his memorandum of 1st June last, the decimal series of grain weight being available for weighing requiring special accuracy.

It is requested that your reply be sent as soon as may be, so that it may be laid before the Commission next Friday.

I am, &c.

HENRY JAS. CHANEY,

Messrs. Sloane & Carter. Secretary.

From Messrs. SLOANE & CARTER, in reply.

89, Spencer Strect, Birmingham,

SIR, November 30, 1869.

WE beg to acknowledge your communication of the 29th inst. In reply to your questions,—

I. It is our opinion that the abolition of troy weight (1) is not necessary: (2) that the confusion, inconveniences, and errors, arising from any change would be very great, without any, or at least, no substantial benefit to the

Appendix VII.—*continued.*

manufacturers and factors. (3.) As for shopkeepers, proportionately speaking, the value of goods they buy by weight is very small, therefore any change would not be of sufficient benefit to warrant the abolition of an old and (to them) well-known system of weights, and the introduction of one, the understanding of which would be no easy matter for the large class of small country shopkeepers. Again, goods bought by weight by private persons are very few indeed, so that they can hardly be considered in the question. Indeed, any one who buys by weight will make it a point to understand the table of the weights by which he is buying, so that the ignorance of the public in the matter of troy weight cannot, we think, have weight in the decision to be arrived at.

II. The principal objections raised by the trade are as above. Also in the large manufactories (where every workmen has his gold weighed when given to and when taken from him), great annoyance and serious misunderstandings would, we think, arise between masters and men, for if the masters themselves perfectly understood the new system introduced, the men (who are not an educated class) would not even attempt to.

III. We do believe that the change from troy to either metric or avoirdupois would be objectionable to the trade generally on the grounds stated.

IV. If any change be made, we think the mode preferred would be to make the ounce avoirdupois the unit for calculation, and the divisions of it to be on the Metric system. We beg to submit that the $\frac{1}{16}$ of a dram (nearly 2 grains troy) would not be small enough for the better qualities of gold. Our present grain is none too small.

Many questions, such as the revolution caused by the proposed change in quotations of value (which would be another great inconvenience), time allowed for change, &c., will doubtless arise from the above observations.

Our Mr. Carter, junr. will be pleased to attend and give further information on Friday next, if it meets with your approval. Evidence *vivâ voce* would be more explicit, voluminous, and satisfactory than this.

Awaiting your reply,

We have, &c.
SLOANE & CARTER.

The Secretary,
Standards Commission.

P.S.—Since your communication Mr. H. Carter has made inquiries of the factors, &c., and we believe fully understands their views in the matter.

APPENDIX VIII.

FURTHER MEMORANDA by the ASTRONOMER ROYAL on the State of the Question now before them regarding the suggested ABOLITION of TROY WEIGHT.

Royal Observatory, Greenwich,
June 1, 1869.

THE Annual Visitation of the Royal Observatory, which falls on June 5th, will prevent me from attending the meeting of the Standards Commission appointed for that day; and my contemplated absence from Greenwich for a time may interfere with my attendance at some later meetings. I take this method, therefore, of suggesting for consideration some points which I think must be further examined before we can accept the question of abolition of troy weight as ready for our decision.

The general question appears from the evidence which has already come before us, naturally to divide itself into three parts:—

1. As regards the interest and convenience of bullion dealers and money dealers on the large scale.
2. As regards the sale in shops of manufacturers of the precious metals.
3. As regards the internal arrangements of the factories of goldsmiths and silversmiths.

(1.) The interests of the first class may be supposed to be sufficiently represented by the Mint and the Bank of England. Although we have no official expression of opinion from the Directors of the Bank we have sufficient oral evidence from their two principal officers to enable us to estimate the probable tendency of the opinions of that body. I dismiss from consideration (as I believe most practical men will) the alarms about interminable decimals, and remark only that in virtue of the very near agreement in weight of the British sovereign with 8 grammes on the metric system, which agreement may be made sensibly exact, with a convenient millesimal statement of fineness, by a trifling addition to the alloy (in the direction of approach to the French alloy), I have no doubt that the authorities of the Bank would be desirous of at once dismissing the Troy system and substituting the Metric system; the necessary alterations being made in the numerical terms of various Acts of Parliament.

(2.) For transactions of the public in ordinary shop-sale, I believe that the considerations must be totally different. I have not the slightest idea that the metric system will ever take hold of public feeling in this country. I think that for the sale of plate it will be necessary to retain the ounce, and as I believe that the notions of most people on the difference between the troy ounce and the avoirdupois ounce are very obscure, I do think that there would be great advantage in changing the ounce, and little difficulty in doing so provided that a convenient scale of subdivision were proposed. We have the evidence of an intelligent witness that the pennyweight (24 grains) is the lowest weight required for silver; now the dram (27·34 grains) comes so near to it that it might probably be adopted as the limiting weight. For gold, whose value is about 15 times that of silver a smaller weight must be taken for limit. The proportion suggests at once that the dram be subdivided into 16 parts; no new name is required (as carpenters require no special name for $\frac{1}{16}$ of an inch), but legal sanction and standards might be required. The value thus arrived at would be in grains $\frac{7000}{4096}$ or $\frac{7}{4}$ nearly, a very convenient magnitude. The scale of descent from the pound would be $16 \times 16 \times 16$, the longest binary scale in the world.

It is my belief that this scale might be introduced, and, if so, the doom of the troy system would be settled. The grain would remain as a fundamental imperial weight, and as an avoirdupois weight for special purposes in which great accuracy is required, a series of decimal grain weights having been recommended in our First Report. I consider it independently necessary that evidence should be received on the general condition of the shop trade in plate, and I now consider that it would be proper to address a part of the inquiries distinctly to the point to which I have called attention.

(3.) The internal arrangements of the factories of goldsmiths and silversmiths and the habits of workmen who, in subordination to masters, work in their private houses, have perhaps attracted too much of our attention. These arrangements scarcely demand the consideration of the legislature; they will probably adjust themselves to anything which is found satisfactory for the external transactions of the masters.

G. B. AIRY.

June 18, 1869.

BY the existing law (56 Geo. 3. c. 68. s. 4.) a troy pound of silver of standard fineness is coined into 66 shillings; the shilling therefore weighs $\frac{5760}{66}$ grains, or 87·273 grains. Under section 9 of this Act the standard of fineness in the pound troy is 11 ozs. 2 dwt. of fine silver, and 18 dwt. of alloy. The corresponding degrees of fineness millesimally expressed, are 925 and 75.

If an avoirdupois pound of alloyed silver were coined into 80 shillings each shilling would weigh $\frac{7000}{80}$ grains, or 87·500 grains.

Appendix VIII.—*continued.*

In order, therefore to make a shilling of the same intrinsic value as the existing shilling, but weighing $\frac{1}{80}$ of the avoirdupois pound, or $\frac{1}{6}$ of the avoirdupois ounce, it is only necessary to add to its alloy 0·227 grain. The existing shilling consists of 80·728 grains of pure silver and 6·545 grains of alloy. The new shilling would consist of the same weight of pure silver and 6·772 grains of alloy. The corresponding degree of fineness, millesimally expressed, is 922·605.

This proposal does not prejudge any decision as to the alteration which may ultimately be found necessary on account of the increased commercial value of silver as referred to a gold standard. Any such alteration in the weight of pure silver ought to be accompanied with an equal alteration of the opposite kind in the weight of alloy.

The weight of one ounce avoirdupois would be represented exactly by a five-shilling piece on the actual subdivision of the pound sterling, or by two florins and 50 mils on the millesimal subdivision.

The following advantages would seem to attend the adoption of this proposal:—

The Mint rule for coinage would, in the apprehension of the public, be simpler.

The value of silver bullion would be more easily understood by the public.

The coins could be used with perfect accuracy as a weight in the balance scales.

The change in the proportion of alloy is in the directions of the French and other foreign proportions of alloy.

G. B. AIRY.

APPENDIX IX.

Concluding Paper by the Warden of the Standards, with Summary of Information and proposed Resolutions on the Question of the Abolition of Troy Weight, &c.

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Proposed summary of evidence and its bearing upon the question.

All the evidence upon the subject of the abolition of Troy weight, considered requisite for the information of the Commission, having been submitted to them, it may now be desirable to give a summary of the information thus obtained, with some observations showing its bearing upon the questions upon which the Commission have to express an opinion.

Witnesses examined.

The evidence and opinions of the following witnesses have to a greater or less extent been given to the Commission:—

1. Dr. Sharpey, Member of the General Medical Council.
2. Dr. Redwood, Professor of Chemistry to the Pharmaceutical Society.
3. Mr. F. D. Mocatta, as representing the bullion trade.
4. Mr. Attenborough, retail silversmith, &c. and pawnbroker.
5. Messrs. Elkington & Co., manufacturing and retail silversmiths, &c., Birmingham and London.
6. Messrs. Hennell & Sons, manufacturing silversmiths, London.
7. Messrs. Hunt and Roskell, manufacturing and retail goldsmiths, &c., London.
8. Mr. H. Stewart, of the firm of Hancock & Co., London.
9. Mr. James M. Garrard, of the firm of Garrard & Co., London.
10. Mr. Ralph Heaton, metal manufacturer, Birmingham.
11. Mr. C. Houle, manufacturing silversmith, London.
12. Mr. G. Forbes, chief cashier, Bank of England.
13. Mr. A. Johnson, chief clerk, Bullion Office, Bank of England.
14. Mr. Willoughby, retail silversmith, &c., Windsor.
15. Mr. H. Carter, of the firm of Sloane and Carter, manufacturing silversmiths and factors, Birmingham, as representing to some extent the provincial retail trade.

Communications have also been received from Mr. Prideaux, clerk of the Goldsmiths' Company, and from the Governor of the Bank of England, whose attention has been drawn to the subject; and some of the witnesses who were examined upon the general subject of the inspection of weights and measures have given incidental evidence upon the subject of Troy weight.

The information thus obtained may be considered under the two distinct heads of the subject to which reference has been made, viz.:—

1. The question of the abolition of Troy weight:
2. And of the substitution of Avoirdupois or Metric weight.

I.—Is the Abolition of Troy Weight now expedient?

I. *Question of abolition of Troy weight.*

The general grounds for the abolition of Troy weight have been stated at p. 147 of Appendix III. The substance of the evidence brought before the Commission, so far as it bears upon the question, is as follows:—

Opinions of witnesses.

Mr. Mocatta thinks that the bullion dealers would naturally prefer the existing system of Troy weight, although they would not be likely to offer any resistance to the change

Appendix IX.—*continued.*

XVII. p. 11. proposed: that with regard to manufacturers and traders who use Troy weight in this country, the proposed change would form a source of considerable confusion for a long time to come, and naturally be a subject of complaint, although, no doubt, even with these parties, custom would gradually reconcile them to the change.

Mr. Attenborough and Messrs. Elkington express opinions favourable to the proposal.

Messrs. Hennell have great objection to the abolition of Troy weight, and consider it would be objectionable to the trade generally. If abolished by law, from 10 to 20 years should be fixed as the period when the use of Troy weights should be declared illegal.

Messrs. Hunt and Roskell have no objection to the abolition of Troy weight, but consider this or any other change would be objectionable to the trade generally; that 10 years is the shortest period which should be fixed for its abolition.

Q. 10. Q. 13. Q. 18. Q. 71. Q. 75. Mr. Stewart is not particularly opposed to the change, and if it is any general advantage, does not see that the trade can object to it: it would be attended with great inconvenience till one gets accustomed to any other weights, but beyond that, he does not know of any other inconvenience to the home trade. A period of six months would be quite time enough to give for the change.

Mr. J. Garrard thinks that practically there is a great objection to the abolition of Troy weight, and that the practical portion of the trade would generally object to it. His objections are grounded on the confusion it would cause to the workmen who are used to Troy weight, and

Q. 83. never will learn any other. Supposing such a change was made, he feels satisfied that in the trade generally no alteration could be made without detriment to the employers

Q. 133. under 10 years. In fact, if Troy weight were legally abolished, the existing generation of workmen would contrive to use it, and the masters would be compelled to work

Q. 99. out the equivalent in the substituted system. He thinks also that there would not be so much objection on the part of the retail dealers, who would take up the new system much more readily than the workmen; but the dealers are a very small minority in comparison with the workmen; for one dealer we have 100 workmen.

Q. 137-9. Mr. Ralph Heaton, though rarely using Troy weights in his own business, has found both confusion and inconvenience to arise from the concurrent use of Troy weight

Q. 140-6. and Avoirdupois weight. He does not object to the abolition of Troy weight, and having consulted those largely engaged at Birmingham in the silver, electro plate, and jewellery trade, has been told that they think it would be better to have but one kind of weight, and that it is the feeling of the trade that it would be a good thing to get

Q. 153. rid of Troy weight. He thinks twelve months from the passing of an Act would be ample time to give, at the end of which the use of Troy weight should be declared illegal.

Q. 233. Mr. C. Houle objects to the abolition, as it would cause a great deal of trouble and annoyance, and he is sure it

Q. 262-4. would be objectionable to the trade generally. Weights

Q. 290-3. are more used in his trade than in any other; the men are using them all day long. Troy weight is very simple, the men are used to it, and the workmen will not change it unless they are compelled.

Mr. Willoughby apprehends that the trade in general would be against any innovation of their present Troy weight, though offered in its place a simpler and better system. They are accustomed to Troy weight, and would object to the trouble and expense of any change. The most practical of the workmen are rarely educated, and are wedded to their old customs; their appeal would be loud and strong ere they suffered themselves and their Troy weight to be divorced. He is not of opinion that the general public would be benefited by the alteration.

Q. 3201-2. Mr. H. Carter states in his evidence that there might be inconvenience in making a change from Troy weight, and he is unable to see any advantage to be gained by the

Q. 3214. change. His objections to the abolition of Troy weight rest upon the immense amount of the inconvenience that would be entailed on manufacturers, factors, and shopkeepers, whereas the good they will be unable to see; that it will upset the system of assay with which shopkeepers are now pretty well acquainted; and will cause a great deal of inconvenience and serious errors as regards the alloying of metals; as well as a great loss, inasmuch as many things pass through the Hall, and must be altered or cut up in order to agree with the new system.

How affecting the several classes using Troy weight. Rightly to examine the weight due to this evidence, as well as to come to a proper determination upon the whole question, it should be considered how the abolition of Troy weight would affect the several classes referred to by the Astronomer Royal in his memorandum of 1st June 1869, viz.:—

1. Bullion dealers and money dealers on the large scale.
2. Retail dealers in gold and silver wares having open shops.
3. Manufacturers of gold and silver wares, wholesale dealers, and their workmen.

Under Class 1 may be included the Bank of England and the Royal Mint, with coinage and assay operations.

It should be particularly observed that the law imposes no direct control over the weights used by Class 1 or Class 3, but in those used by Class 2 only, who are subject to the visits of the inspectors of weights and measures, for the due protection of the public in open sales, and who alone are thus made liable to the impositiou of penalties on convictions for the use or possession of illegal weights. The weights used by Class 3 in the internal operations of their own factories or workshops are under their own control, and no interference of the inspectors is either authorized by law or in any way exercised.

As to objections raised by them. Neither from Class 1 or Class 2 have any serious objections been brought forward against the abolition of Troy weight. Objections have been raised by Class 3 only, but even amongst them opinions are divided. Almost all the objections resolve themselves into the very natural dislike to change a system of weights to which men are accustomed, and to which all their arrangements have long been adapted. It is also particularly to be noticed that the strongest objections to the abolition of Troy weight, and the substitution of Metric weight, are made by witnesses unacquainted with the Metric system, and who " had never given much attention to the Metric system, so " as to form a judgment which was the simpler."

Houle, Q. 271.

How these objections may be met. These objections may, to a great extent, be obviated by permitting for a period of 10 years the use of Troy weights in manufacturing operations not subjected to inspection, and to this extent legalising contracts, in which reference may be made to Troy weights, as between masters and workmen, or between wholesale and retail dealers.

It would seem to be reasonable to allow also a considerable period during which Troy weights might be used by retail dealers in gold and silver wares, who have their stock now marked with its weight in Troy ounces and pennyweights. It is upon this ground that Messrs. Hunt and Roskell have expressed their opinion that 10 years should be allowed. But considering that their neighbours, Messrs. Hancocks, ask for six months only, and that Mr. Carter, who represents the provincial trade, has shown that retail sale of gold and silver wares by weight is quite exceptional, it does not appear that a longer period of toleration than 12 months after the passing of the Act is called for in their case.

Further grounds for abolishing Troy weight. Two of the principal arguments for the abolition of Troy weight at the present time have yet to be noticed.

The first is, that as the Metric system is now proposed to be legalized in this country, the concurrent use of three distinct systems of weights, all sanctioned by law, and the consequent multiplicity of weights of different systems, would not be endurable. The Troy system, abandoned for medical weights, and now used by one class only of traders, must clearly give way.

The second and far stronger argument is, that if the use of Troy weights in shops is to continue legal, the same machinery ought to be put in action for the protection of the public as is now required in the case of Avoirdupois weights, and will be required for Metric weights. The

Q. 1159. Troy ounce weights now generally used are the old nest set of Troy weights, increasing in a binary series from 1 oz. to 256 oz., according to the old Standards of Queen Elizabeth, described in the Report on the Exchequer Standards, dated in 1863 (pp. 4 and 9). These ceased to be the legal Standards in 1824. The existing legal series of Troy weights, represented by the official standards, are not in general use by the public, nor are copies furnished to the Inspector of Weights and Measures, except in very few instances. Consequently, either new Standards of Troy weights of the old denominations corresponding with the weights in use, must be constructed and legalized; or else means must be adopted for preventing the use of these old Troy ounce weights, for which there are now no legal standards, and new weights corresponding with the existing official Standards must be procured for general use. It will be seen also that copies of the Standards of Troy

Appendix IX.—*continued.*

weight, in addition to those of Avoirdupois and of Metric weight, will be wanted in every district of inspection throughout the country, thus tending to cause complication and confusion in the instruments and duties of the Inspectors, which may lead to serious inconvenience.

Conclusion that its abolition is inevitable.

Upon all these grounds the conclusion seems inevitable that Troy weight should be abolished, and with it the system of decimal bullion weights established by the Act of 1853, which has failed to meet with any general acceptance by the public.

II. *Question of substitution of Avoirdupois or Metric weight.* Proposal of the late Master of the Mint compulsorily to substitute Metric weight, and of Astronomer Royal to substitute Avoirdupois weight for purposes of internal trade.

II.—Question of Substitution of Avoirdupois or Metric Weight.

Two propositions have been submitted to the Commission. The first by the late Master of the Mint, whose loss we have so much to deplore, and who formally proposed to abolish Troy weight and to substitute compulsorily Metric weight, avowedly with the view of thus most effectively introducing the Metric system to the general notice of the public. The second by the Astronomer Royal, who concurs in the substitution of Metric weight for bullion and coinage operations; but holding, as he does, that as regards transactions of internal trade, the Metric system will not be accepted in the country, the Astronomer Royal has suggested for the consideration of the Commission that for such purposes the Avoirdupois ounce may be substituted for the Troy ounce, as a unit, with a continued binary subdivision of the dram down to $\frac{1}{16}$ part, being very nearly equivalent to $1\frac{3}{4}$ grain.

What weights substituted for Troy weights in pharmacy.

The earliest observations upon the Master of the Mint's proposal were from Dr. Sharpey and Dr. Redwood, who refer to the mode in which a similar question has been dealt with as affecting pharmaceutical weight. Under the Medical Act of 1858, the Medical Council determined to discontinue the old system of Apothecaries weight, consisting of the Troy ounce, with its subdivision into eight drams, and of the dram into three scruples, one scruple being equal to 20 grains.

It was first proposed to substitute the Avoirdupois system, at the same time introducing a new grain weight from the subdivision of the Avoirdupois ounce into 480 new grains. The object was to maintain the relative subdivisions of the Troy ounce into eight drams, and the dram into 60 parts, or grains. This was rejected by the Medical Council, as well as the proposal for substituting the Metric system. The arrangement determined upon was, that for pharmaceutical weights the only units used should be the Avoirdupois pound, ounce, and grain. The Avoirdupois ounce is thus available with its aliquot parts down to its lowest binary subdivision, the $\frac{1}{2}$ dram = 13·671875 grains. But with this fractional relation, the grain weights can form no part of the subdivisions of the ounce as a unit. When very minute weighings are required for medical purposes, the grain must be used as a unit, with its multiples and parts.

But in the recognized use of weights, as applied to the determination of liquid measures, from the weight of water contained in them, the Medical Council, when subdividing the Avoirdupois ounce, have adhered to the old subdivision of the Troy ounce.

The fluid ounce now contains one Avoirdupois ounce weight of water.

One fluid dram ($\frac{1}{8}$ oz.) contains 54·68 grains weight of water.

One minim ($\frac{1}{60}$ dr., or $\frac{1}{480}$ oz.,) contains 0·91 grains weight of water.

British Pharmacopœia, 1867, p. 392.

Nor is this all. For volumetric estimations and testing operations, the quantities of substances are expressed in grains by weight, and of solutions in grain measures, the grain measure being the volume of a grain weight of distilled water. For this purpose a decimal series of grains is employed, up to 10,000 grains. A graduated cylindrical jar is used containing exactly 10,000 grains weight of distilled water at 60° Fahr., and is divided into 100 equal parts; and a graduated tube or burette, holding 1,000 grains of distilled water is divided into 100 equal parts, each part corresponding to 10 grain measures.

Attention may be particularly drawn to the temperature of 60° Fahr. thus authorised in pharmaceutical measurements. It is distinctly stated in the Pharmacopœia that all measurements should be made at 60° F., and that it is customary to make measurements with Metric apparatus at 60° F. No mention is made of any corresponding barometric pressure.

The use of Metric weights and measures has, to a certain extent, been sanctioned by the Medical Council, who now gives in their Pharmacopœia tables of their equivalents with the pharmaceutical weights and measures.

According to Dr. Redwood, the advocates for the adoption of the Metric system in pharmacy are gaining ground, and the only difference of opinion now is, to the time when the change shall be made, as all admit that sooner or later it is inevitable.

I have been informed by a chemist, who has much practical experience as a tradesman, that many medical men still continue to use in their prescriptions the dram and the scruple; and that the old weights of these denominations are still much used by chemists, who consider that they conform to the regulations of the Pharmacopœia, by terming them 60 grain and 20 grain weights.

Why option shall be left to the public to substitute either Avoirdupois or Metric weights.

In considering the question of the weights to be substituted for Troy weights, we must remember that if our recommendation of legalizing the use, in this country, of Metric weights concurrently with Avoirdupois weights, is carried into effect by law, all persons who now use Troy weight will have the option of substituting either Avoirdupois weight or Metric weight. It will be a sufficient hardship upon those who now use Troy weights to be obliged to give them up, and it would be manifestly unjust to impose upon them the additional obligation to use Metric weights only in substitution for their Troy weights, whilst all other classes of the community will be under no compulsion to give up their Avoirdupois weights, and will also be allowed the option of using Metric weights. As a general proposition, therefore, it appears to me that the compulsory substitution of Metric weights for Troy weights cannot be entertained by the Commission, consistently with the recommendation in their Second Report; and that whilst recommending the abolition of Troy weight, it is a duty incumbent upon us to facilitate the substitution of either Avoirdupois or Metric weights by the community, who now use Troy weights, and to provide Avoirdupois equivalents so far as may be practicable.

And facilities be afforded for the use of Avoirdupois equivalents.

I consider, therefore, that we cannot do less than agree to the proposal of the Astronomer Royal, to continue the binary subdivisions of the Avoirdupois dram to the $\frac{1}{16}$ part, or nearly $\frac{7}{4}$ths of a grain, provided such subdivisions should be actually needed for the use of the public. So far, however, as appears from the evidence produced before us, they are neither so required, nor are they likely to be generally used as weights, should the requisite Standards be provided.

In bullion and coinage operations, which are of an international character, it is most probable that Metric weights will be used. For all weighings in silver for manufacturing or trade operations, the dram may answer every purpose of accuracy, as it is but little more than the pennyweight, the smallest weight now used for weighing silver; and indeed the half dram will be available, if required. For more precise weighings of gold, the grain and its decimal multiples and parts, for which the requisite Standards from 0·01 grain to 1,000 grains are already provided, and have been recommended in our First Report to be legalized as official Standards, will surely be sufficient as supplementary to the other series of Avoirdupois weights. To complete this series up to the pound, it is needed only to legalize as Standards the additional weights of 2,000 grains, and of 4,000 grains, these weights having been also verified as auxiliary official Standards. All the grain weights should have a distinctive character, so as to prevent confusion and mistake between them and other nearly equivalent weights. They would be very serviceable for pharmaceutical purposes.

Preposed substitution of Metric weights in coinage, &c. operations.

With respect to the provisions to be made for coinage operations, including the purchase of bullion and assays, now based upon Troy weight, we have the opinion of the late Master of the Mint, a most competent authority, that the substitution of the Metric system of weights and the decimal system of assay, would be attended not only with no difficulty, as regards the Mint, the Bank, and bullion dealers, but also with advantage to the public. If his recommendation be so far adopted and carried out, the use of Troy weights for these operations, as well as of decimal bullion weights and of the carat computation, would thereupon cease. The Astronomer Royal, in his Memorandum of 1st June, agrees to this portion of the proposal of the Master of the Mint, and the Commission will doubtless also concur in a general recommendation to the same effect.

Substitution of specific weights for Troy weights recited in Statutes.

The case is somewhat different with regard to those provisions of law where Troy weight is recited, and for which a specific substitute must be provided, either in Avoirdupois weight or Metric weight, or in both. As regards, therefore, the substitution of Metric weight for Troy weight in bullion, coinage, assay, and revenue operations, it may be con-

Appendix IX.—*continued.*

venient to place before the Commission the exact equivalents, both in Avoirdupois and Metric weight, of the several actual quantities in Troy weight now required by law to be used.

Mr. Lowe's suggestions for altering weights, &c. of gold coinage.

Much information upon these points has been already laid before the Commission, amongst which are some important suggestions relating to the gold coinage, and involving changes of an important character in its weight and standard of fineness. The suggestions are contained in the speech of the Chancellor of the Exchequer on 6th August last, in the House of Commons, and have elicited much public discussion.

The main objects of these suggestions appear to be twofold:—First, to reimburse to the State the expenses of coinage of gold; secondly, to facilitate arrangements for a system of international coinage. Neither of these objects is within the province of the Commission. It is only as involving an alteration of the weight of gold in the sovereign, and probably also in its standard of fineness, that they can properly be here noticed.

Consequent inexpediency of temporary alteration of weight or standard fineness.

But the mere fact that an alteration of the weight of our gold coinage and of its standard of fineness is in contemplation for these more important objects, involving probably a similar alteration in our silver coinage also, tends to show the inexpediency of the Standards Commission recommending meanwhile any change whatever in the weight or standard of fineness of our existing coinage. Such change has only been suggested to them for the purpose of stating them in a more integral form, in terms of another scale to be substituted for the Troy scale. It will be seen from the figures contained in the following tabular statement of Troy weights and their Avoirdupois and Metric equivalents that there is no sufficient object to be gained by carrying out this suggestion, nor, indeed, can the purpose itself be more than partially attained. It can hardly be called for by considerations of public convenience, when the public are accustomed to such fractional amounts as 3*l.* 17*s.* 10½*d.* an ounce for standard gold, and to a pound of standard gold being made into $46\frac{29}{40}$ sovereigns, and when the weight of each sovereign, or of its component parts, can under no conditions be expressed in ounces or grains, except by an interminable decimal. If this argument be admitted, all that can now be done by the Commission is to recommend that equivalents in Avoirdupois or Metric weights be substituted for the Troy weights specified in existing laws.

Tabular statements of Avoirdupois and Metric equivalents of specified Troy weights.

The following statement of the nearest equivalents may serve to indicate the weights which may be thus most conveniently substituted. It should be observed that whilst Mr. Lowe suggests a deduction of nearly one grain of standard gold from the full legal weight of the sovereign, he does not mention how the question of the standard of fineness or relative weight of alloy, nor the lowest legal current weight, is to be dealt with, as well as some other details. This information, however, may be supplied from Colonel Smith's Memorandum, dated 10th June 1868, appended to the Report of the International Coinage Commission of 1869, p. 152.

Gold Coinage.

Gold coinage.

Equivalents of standard gold, $\frac{11}{12}$ fine, at—

£	s.	d.		£	s.	d.		£	s.	d.	
3	17	10½	per Troy oz. =	3	10	11·7578	per Avoir. oz. =	0	2	6·0448125	per gram.
3,893	15	0	per 1,000 „ =	3,548	19	9·8125	per 1,000 „ =	125	3	8·8546	per kilogr.
46	14	6	per Troy lb. =	56	15	8·125	per Avoir lb.				
46,725	0	0	per 1,000 „ =	56,783	17	1	per 1,000 „				
3	17	9	per Troy oz. =	3	10	10·3906	per Avoir. oz.				
3,887	10	0	per 1,000 „ =	3,543	5	10·6	per 1,000 „ =	124	19	8·627	per kilogr.
Difference of 1½			per Troy oz. =	0	0	1·367	per Avoir. oz.				
or 6	5	0	per 1,000 „ =	5	13	11·2	per 1,000 „ =	0	4	0·22608	per kilogr.

Equivalent Weights of the Sovereign.

——	Troy ounces.	Grains.	Grammes.
Existing sovereign $\frac{11}{12}$ oz., or 91·6 per cent. fine, at 3*l.* 17*s.* 10½*d.* per oz.			
Full legal weight	0·25682183	123·27448	7·98806
Of fine gold -	0·23542001	113·00161	7·32239
Alloy - -	0·02140182	10·27287	0·66567
Lowest legal current weight (being less 0·628 per cent.)		122·50000	7·93787
Of fine gold - -		112·29166	7·27638
Alloy - - -		10·20833	0·66149
According to Col. Smith:—			
Average in circulation above lowest legal current weight.		122·76036	7·95474
Of fine gold - -		112·53023	7·29185
Alloy - - -		10·23013	0·66289
Do. according to Mr. Miller, Bank of England:—			
Average weight - -		122·78880	7·95658
Of fine gold - -		112·55640	7·29352
Alloy - - -		10·23240	0·66306
Mr. Lowe's suggested new sovereign, equal to 25-franc gold piece, $\frac{9}{10}$ fine, viz.:—			
Full legal weight - -		124·45433	8·06451
Of fine gold - -		112·00890	7·25806
Alloy - - -		12·44543	0·80645
Lowest legal current weight (less 0·7 per cent. including 0·2 per cent. for mint tolerance).		123·58315	8·00805
Of fine gold - -		111·22484	7·20725
Alloy - - -		12·35831	0·80080
Proportionate average weight in circulation.		123·87400	8·02690
Of fine gold - -		111·48660	7·22421
Alloy - - -		12·38740	0·80269

Equivalent Weights of the Sovereign—*cont.*

——	Troy ounces.	Grains.	Grammes.
Mr. Forbes' suggested sovereign, 91·53 per cent. fine:—			
Full legal weight - -		—	8·00000
Of fine gold - -		—	7·32240
Alloy - - -		—	0·67760
Lowest legal current weight		—	7·95000
Of fine gold - -		—	7·27664
Alloy - - -		—	0·67365

Silver Coinage.

Silver coinage.

The standard fineness of the silver coin of this kingdom is 11 oz. 2 dwt. fine in the lb. Troy, or $\frac{222}{240}$, being equivalent to 92·5 per cent. The corresponding fineness of the silver coin under the Monetary Convention of 1865 between France, Belgium, Italy, and Switzerland is 90·0 per cent. for 5-franc pieces, and 83·5 per cent. for pieces of 2, 1, 0·5 and 0·2 francs.

Equivalents of Standard Silver.

92·5 per cent. fine, at 66*s.* per Troy pound = 80*s.* : 2½*d.* per Avoirdupois lb. = 176*s.* : 9·948*d.* per kilogram.

92·2605 per cent. fine, suggested by the Astronomer Royal, = 80*s.* : per Avoirdupois pound = 176*s.* : 4·436*d.* per kilogram.

——	Grains.	Grammes.
Existing shilling, 92·5 per cent. fine—		
Full legal weight - -	87·2727	5·6552
Of fine silver - -	80·7272	5·2311
Alloy - - -	6·5454	0·4241
Suggested at 92·2605 per cent. fine—		
Full legal weight - -	87·5000	5·6499
Of fine silver - -	80·7272	5·2311
Alloy - - -	6·7727	0·4388

Appendix IX.—*continued.*

Equivalents of Standard Silver—*cont.*

	Grains.	Grammes.
One shilling, 90 per cent. fine (the same as 5-franc pieces)—		
Full legal weight - -	89·6969	5·8123
Of fine silver - -	80·7272	5·2311
Alloy - - -	8·9696	0·5812
Four shillings, $\frac{9}{10}$ fine—		
Full legal weight - -	358·7878	23·2495
Of fine silver - -	322·9090	20·9246
Alloy - - -	35·8787	2·3249
5-franc piece, $\frac{9}{10}$ fine—		
Full legal weight - -	385·8087	25·
Of fine silver - -	347·3079	22·5
Alloy - - -	38·5808	2·5

In 4 shillings there are therefore 24·3989 grains of fine silver less than in 5 francs, or more than $\frac{1}{4}$ oz. (0·2549) less of fine silver in 20 shillings than in 25 francs. At 5*s.* 6½*d.* per oz., the average medium price of fine silver, this difference is equivalent in value to nearly 17*d.*

p. 340. It is shown in the Appendix to the Report of the International Commission of 1869 that in the 10 years from 1856 to 1864 the average medium price of standard silver at London was 61½*d.* per oz., equivalent to 66½*d.* per oz. for fine silver. Five 5-franc pieces of full weight contain 125 grammes, or 4·019 oz. of silver $\frac{9}{10}$ fine, or 3·61695 oz. of fine silver.

The same quantity of fine silver would be contained
in 3·910 oz. of standard silver, $\frac{222}{240}$ fine, which at 61½*d.* per oz. = 20*s.* 0·465*d.*
As only 3·636 oz. of standard silver, $\frac{222}{240}$ fine are contained in 20*s.*
it follows that 0·274 oz. of standard silver, $\frac{222}{240}$ in excess, are contained in 25 fr. = 1*s.* 4·851*d.*

Duties on Gold and Silver Plate.

Duties on gold and silver plate.

17*s.* per Troy oz. on gold plate is equivalent to 15*s.* 5·9375*d.* per Avoirdupois ounce and 2*l.* 14*s.* 7·874*d.* per hectogram.

1*s.* 6*d.* per Troy ounce on silver plate is equivalent to 1*s.* 4·40625*d.* per Avoirdupois ounce, and 4*s.* 9·871*d.* per hectogram.

Licences to deal in Gold and Silver Plates.

Licences for selling gold and silver plate.

Amongst the Acts reciting Troy weights, mentioned in Paper XVII.–1, those were omitted to be stated which imposed duties in respect of licences to persons trading in gold and silver plate. These annual duties are as follows:—

To sell 2 dwts. and under 2 oz. of gold, or 5 dwts. and under 30 oz. of silver	£2 6 0
Above these quantities - - -	5 15 0

The equivalents of these quantities are:—

Troy, 2 dwts.	= 48 grains.		
5 dwts.	= 120 „		
2 oz.	= 960 „	or 2·194 oz. avoird.	
30 oz.	= 14,400 „	or 32·914 oz.	„
or,	= 3·110 grammes.		
	= 7·776 „		
	= 62·207 „		
	= 933·105 „		

Conclusion. It remains only to propose, for the consideration of the Commission, formal resolutions to constitute the basis of their Report upon the whole subject of the proposed abolition of Troy weight. The following resolutions have been drawn up in consultation with the Chairman, and they embody some of his suggestions. They will be submitted, with his sanction and approval, for the judgment of the Commission.

Proposed Resolutions.

1. Considering,

That in the Reports of the Standards Commission of 1841 and 1854, opinions have been expressed in favour of the simplification of the Imperial system of weights by the abolition of Troy weight;

That Troy weight has since been legally discontinued for pharmaceutical purposes, and Avoirdupois weight substituted under the provisions of the Medical Act, 1864;

That Troy weights are now used only for the precious metals, and for trade purposes by manufacturers and dealers in gold and silver wares;

That the Troy weights so used for trade purposes appear to be the old nest set of ounce weights, increasing in a binary series up to 256 oz., according to the old Standards established by Queen Elizabeth in 1588, which ceased to be the legal Standards in 1824; and that the existing legal denominations of Troy weights, as represented by the official Standards, are not generally used;

That the decimal series of Troy ounces for bullion, legalized in 1853, has never been adopted by the general public;

That it has been shown to us that throughout the United Kingdom only eight counties and thirteen cities and towns are furnished with legal copies of the official Troy Standards, and two counties and five cities and towns with legal copies of the official decimal bullion Standards;

That the legal provisions for stamping and inspecting Troy weights throughout the country have been practically inoperative;

That the legalization of the use of Metric weights has been recommended by us in our Second Report, and the concurrent use of three distinct systems of weights will be inexpedient and tend to produce confusion and complication, more especially as regards the local inspection of weights and measures, as, in the event of the continuance of the Troy system, it would be requisite to provide for an equally vigilant inspection of Troy weights as of other weights;

That we have satisfied ourselves, from the evidence of various classes of persons now using Troy weights in business transactions, that there are no sufficiently valid reasons for the continuance of Troy weight which can be placed against the great advantage to the public of simplifying our system of weights by its abolition;

We are of opinion that it is expedient that the use of Troy weights be abolished by law.

2. We therefore recommend that legislative provision be made, that from and after twelve months from the passing of an Act for that purpose,—

The provisions of the Act 5 Geo. 4. c. 74., for ascertaining and establishing uniformity of weights and measures, and of 16 Vict. c. 29., for regulating the weights used in the sales of bullion, and of any other Act or Acts legalising or requiring the use of Troy weights, so far as they relate to the same, be repealed;

All secondary Standards of Troy weight, now deposited in the Standards Department of the Board of Trade, shall cease to be legal secondary Standards;

All copies of such secondary Standards of Troy weight, verified for the use of local Inspectors of weights and measures, shall cease to be legal Standards;

The use of all Troy weights in shops and places where goods are exposed or kept for sale shall be illegal, and all Troy weights found there shall be liable to be seized and forfeited, and the person in whose possession they are found shall, on conviction, be liable to a penalty not exceeding 5*l.*;

All contracts for buying and selling made in terms of Troy weight shall be void;

Such provisions to apply to all weights and measures used for pharmaceutical purposes; and that it be expressly declared that the powers of regulating the weights and measures to be used in Pharmacy, granted to the General Medical Council, under the Medical Act, 1858, be limited to legal denominations of weights and measures for which Standards are provided by law.

3. We recommend that for a period of 10 years after the passing of the Act, the use of Troy weights for the internal operations of manufactories and workshops not subject to the visits of inspectors of weights and measures be permitted, and that no contract or agreement between a master and workman, or between a wholesale and retail dealer, be illegal, in consequence of its being made in reference to Troy weight;

But that after the expiration of 10 years from the passing of the Act, the same provisions shall be applicable to such Troy weights as to those specified in s. 2.

4. Considering,

That the several operations connected with the gold and silver coinage, the purchase of bullion, and the

Appendix IX.—*continued.*

assay of the precious metals are frequently carried on with relation to business transactions with foreign countries, and, as such, are matters of international trade;

That we have had the evidence of the late Master of the Mint that the substitution of the Metric system of weights for the Troy system, and of the decimal system of assay for the grain and carat system would be attended not only with no difficulty as regards the Mint, the Bank of England, and the bullion trade, but with advantage to the public;

That from the evidence produced before us, we have reason to believe that no valid objections or practical difficulties exist to such substitution;

We recommend that legislative provision be made that, in all cases where specified weights of the Troy system are recited in any existing Act of Parliament, and relate to the weight or fineness of the gold or silver coinage, or of bullion, the the nearest equivalent Metric weights, according to a Table of Equivalents to be contained in a Schedule annexed to the Act, be substituted.

And we also recommend that in all statements of assays of gold and silver bullion, upon which any legal contracts can be based, the millesimal or centesimal system of assay be substituted for the grain and carat system.

5. Whereas it has been shown to us that the full legal weight of the sovereign very nearly agrees with eight grammes of the Metric system, which agreement may be made sensibly exact, with a convenient millesimal statement of fineness (915·3 instead of 916·66, the millesimal equivalent of $\frac{11}{12}$), by the small addition of 0·01193 grains to the alloy; and that a similar addition of 0·227 grain to the alloy of the shilling (entailing a corresponding change in the statement of fineness of 922·605 instead of 925, the millesimal equivalent of $\frac{222}{240}$), would enable a pound Avoirdupois of standard silver to be coined into 80 shillings, under the same conditions that a pound Troy of standard silver is now coined into 66 shillings;

Under other circumstances we should have been disposed to recommend the adoption of these alterations, for the reasons stated by the Astronomer Royal in his memorandum of 18th June 1869. But as it might be considered inexpedient to make any temporary change in the established weight of the coinage at the present period, when far greater changes, both of the weight and standard fineness of our coinage, are seriously contemplated, with a view to the more important object of the establishment of an international system of coinage, we merely call attention to these suggestions as deserving notice.

6. With regard to Troy weights specified in Statutes relating to duties on gold and silver plate, and licences for dealers in gold and silver plate,—

We think that it may be sufficient that due legislative provision be made to enable the Inland Revenue Department, to substitute either Avoirdupois or Metric equivalents, or the nearest integral equivalents that may be deemed expedient, until such time as a legislative change may be made in the amounts of these duties for fiscal objects.

In the assessment of Custom duties on gold and silver plate imported into this kingdom from other countries, we recommend the substitution of similar equivalents of Metric weight.

7. As to the weights to be substituted for those of the Troy system now used by the general public and for purposes of manufacture and trade.

Considering,—

That we have stated our opinion in our Second Report that the general introduction of the Metric system should be permissive only and not made compulsory by law after any period to be now specified, so far as relates to the use of Metric weights for weighing goods for sale or conveyance; and that authoritative regulations should be established by which each series of weights may bs readily and easily distinguished by the adoption of conspicuous distinctive forms or otherwise;

That it will be a sufficient hardship upon those persons who now use Troy weights to be compelled to give them up, although for the general advantage of the public, and it will be manifestly unjust also to compel them to substitute Metric weights whilst all other classes of the community are under no obligation to abandon their Avoirdupois weights, and are allowed the option of using Metric weights;

That the grain and its multiples and parts, formerly weights of the Troy system, were made Avoirdupois weights, by the provisions of ss. 3 and 4 of the Act of 1853, for legalizing the restored Standards of weights and measures, and will in future be legal weights of the Avoirdupois scale only;

That a decimal series of grain weights has been recommended in our First Report to be legalized as official Standards; and such series from 0·01 grain to 1,000 grains, and additional weights of 2,000 and 4,000 grains have been constructed, and have been most accurately verified in the Standards Department in order to serve as legal Standards, and for verifying copies for the use of local Inspectors of weights and measures, in order that the public may be supplied with weights of this description duly correct;

It appears to us that upon the abolition of Troy weight, all those persons who now use it, either for manufacturing, trading, or other purposes, should be permitted to substitute either Avoirdupois or Metric weights, and that every facility should be afforded to them for this object;

That for all ordinary purposes the substitution of the Avoirdupois pound, ounce, and dram, with their multiples and subdivisions to the half dram, will suffice for those persons who may wish to substitute the Avoirdupois scale;

That for all such persons who may require more minute accuracy in their weighings, the use of the series of decimal grain weights will meet their requirements;

That such grain weights for public use should be constructed of a distinctive form or material, so as to be readily distinguishable from other nearly equivalent weights.

8. With respect to further binary subdivisions of the Avoirdupois dram to $\frac{1}{16}$ part proposed for consideration by the Astronomer Royal in his memorandum of June 1, 1869, as useful for the more minute weighing of gold,

We are of opinion that if it should be hereafter found that such additional weights are needed, they should be legalized and the requisite Standards provided; but no sufficient evidence has been produced before us to show that such weights are actually wanted, or that if provided they will come into general use.

9. We are of opinion that any legislation for carrying into effect the objects of these resolutions should be comprehended in the Bill to be proposed to Parliament by the Executive Government, for the Amendment of the Weights and Measures laws, as recommended in our Second Report.

H. W. CHISHOLM,
Warden.

Standards Department,
14 December 1869.

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STANDARDS COMMISSION.

FOURTH REPORT

OF

THE COMMISSIONERS

APPOINTED TO INQUIRE INTO

THE CONDITION OF THE EXCHEQUER (NOW BOARD OF TRADE) STANDARDS.

WITH APPENDIX.

ON THE

INSPECTION OF WEIGHTS AND MEASURES, &c.

Presented to both Houses of Parliament by Command of Her Majesty.

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FOURTH REPORT.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY,

IN continuation of former Reports, we, the Commissioners appointed under Your Majesty's Royal Warrant, dated 4th May 1868, for inquiring into the condition of the Exchequer Standards (now called the Board of Trade Standards, or the Official Standards), constructed under the provisions of the Act 5 Geo. 4. c. 74., and for other purposes therein set forth, in pursuance of Your Majesty's commands to report to Your Majesty from time to time our several proceedings by virtue of the said Commission, humbly offer to Your Majesty our Fourth Report.

Objects of Report.

I. In Your Majesty's Royal Warrant, we are required among other things generally to consider and report how far the Standards Department may in our judgment be made most efficient, particularly by extending its powers and duties to the obtaining from time to time information from the local Inspectors of weights and measures within their respective districts, to the inspection or supervision of local standards, balances, or other apparatus used for the comparison of weights and measures, and to the furnishing authoritative instructions to the local Inspectors, with the view of securing unity of action in the execution of their duties, but without undue interference with the authority over these officers now vested by law in the magistracy. We propose to submit to Your Majesty in this Report the results of our inquiries into the objects to which our attention has been thus directed.

Searching investigation required.

II. In order that these duties may be fully and satisfactorily discharged, it has appeared to us indispensable to make a searching investigation into the whole subject of the existing system of inspection of weights and measures in the United Kingdom, including the extent of the several districts of inspection, the local authorities under whose control the inspection is placed, and more particularly the number, mode of appointment, remuneration, duties, and execution of the duties of the local Inspectors, with a view of ascertaining any defects or imperfections existing either in the law or in the practice of the inspection of weights and measures, and of recommending such alterations as in our judgment might tend to its improvement.

Reference to evidence, and official papers.

III. At the close of our Third Report, dated 1st February 1870, it was stated that our inquiries into the large and important subject of the inspection of weights and measures had been completed, and that much information relating to the existing system, and to suggested improvements, including the relation of the Standards Department of the Board of Trade to the local Inspectors of weights and measures, would be found in the Minutes of Evidence appended to that Report.

In addition to the evidence so given to us by competent witnesses, we have now to place before Your Majesty further and fuller information upon the subject, which has been officially collected by the Warden of the Standards, and laid before us in various papers appended to the present Report. In these papers, and in the paper appended to our Second Report on the law and practice of the metric system of weights and measures, will be found a comprehensive exposition of the working of the weights and measures laws, not only in this country, but also in France, the North German Confederation, and the United States of North America.

App. X. & XI.

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Defects in existing system how shown.

IV. Such a searching investigation would appear also to be especially called for at the present time, in consequence of the numerous petitions presented to both Houses of Parliament, complaining of the defects in the existing law relating to weights and measures, and its administration, and praying that alterations may be made in the law to remedy such imperfections.

Much detailed evidence of the insufficiency of the existing weights and measures laws may also be seen in a paper appended to this Report, in which the details of numerous cases are given, illustrating the practical working of these laws, and showing also various defects and imperfections in the present system of inspection, with suggestions made for their

App. VI.

amendment. While referring to the opinion expressed in our Second Report, (S. 6,) that the existing system of inspection, though chargeable with imperfections, is on the whole efficient, we may call especial attention to the information cited above, as showing that considerable modifications in the several methods of inspecting weights and measures now in force are desirable.

Improved system now requisite.

V. As a further and important reason for improving the existing system of inspection at the present time, we may point out that it must be considered highly desirable to establish the most efficient machinery for carrying out advantageously the changes in the system of the weights and measures to be used in this kingdom, which have been recommended in our Second and Third Reports, relating to the permissive introduction of Metric weights and measures, and to the abolition of the Troy scale, and substitution of either Imperial or Metric weights in all cases in which Troy weights are now used.

Recommendations in Reports of 1841 and 1854.

VI. In forming our judgment upon the best mode of remedying the imperfections of the existing system, we have referred to the recommendations relating to the inspection of weights and measures contained in the Reports of the Standards Commission of 1841 and 1854.

Division of subject under two heads.

VII. The whole subject is to be considered under the heads of—

(1.) The Inspection of Weights and Measures, as established in 1835, under the Act 5 & 6 Will. 4. c. 63.; and

(2.) The Inspection of Gas Meters, under the Sale of Gas Act, 1859, 22 & 23 Vict. c. 66.

(1.) Inspection of Weights and Measures.

(1.) Inspection of weights and measures. Established by Act of 1835.

VIII. The existing system of inspection of weights and measures, under which the duties of verifying and stamping, as well as of inspection, are performed by the local Inspectors, was first established in 1834, by the Act 4 & 5 Will. 4. c. 49. This Act was amended and superseded by an Act of the following Session, 5 & 6 Will. 4. c. 63.

System previously in force.

IX. Previously to 1834, the duties of verification and stamping, and those of inspection, were discharged by distinct officers. The Act of 1824, 5 Geo. 4. c. 74., for ascertaining and establishing uniformity of weights and measures, whilst providing for material improvements in the weights and measures in common use, and in the standards by which they were to be regulated, made no change in the system upon which the weights and measures laws were administered, or in the local authorities and officers administering them, either according to law, charter, or custom. No provision for such objects is contained in the Act other than to require duly verified copies of the new Standards to be furnished by the magistracy of every county, city, town, &c., and to be placed in the custody of such persons as the magistrates should appoint.

5 Geo. 4. c. 74. s. 12.

At that period, the person discharging the duties of verifying and stamping weights and measures was usually termed the Stamper. The inspection of weights and measures, as distinct from the verification and stamping, was mainly exercised in shops by Annoyance Juries (so named in an Act of 29 Geo. 2. c. 25), and in markets, by Clerks of the market; both of these modes of inspection having been in force from very early periods of our history. There was also another system of inspection which had been established in 1795, by the Act empowering the constable of the hundred or parish to be appointed a local Examiner of weights and measures.

App. I. p. 8.

35 Geo. 3. c. 102.

Examples of old system still in force.

App. XII. p. 385.

Blyth, Q. 1821, &c.
Ledger, Q. 1095, &c.
Fowler, Q. 930, &c.

X. Examples of the continuance of the old system may still be found in the Metropolitan parishes of Paddington, Marylebone, St. Pancras, and St. Mary's Islington, where, by virtue of their local Acts, all weights and measures are verified by the Stamper, who has generally been the parish beadle, and the only inspection of weights and measures is carried on by Annoyance Juries. In the city of London, weights and measures are verified by the "Stamper" at Guildhall, whilst the separate duty of inspection is performed by two inspectors, appointed under the Act of 1835. There exists also a practice of the verification of brass weights by the Founders Company, who claim the right of stamping all brass weights used throughout the kingdom, and now exercise this right to a considerable extent, under powers granted to them by a charter of King James I.

New system superadded to old.

XI. The system of inspection introduced in 1835, was in fact intended to be in addition to, not in substitution for, the former system, all the powers and privileges relating to which were expressly reserved in the concluding clauses of the Act. Practically, however, the local Examiners have since been everywhere superseded by the Inspectors appointed under the Act, and the practice of inspection by Courts Leet and Annoyance Juries has been to a great extent discontinued. But it appears that, in markets, the inspecting functions of Clerks of markets continue to be exclusively exercised, and further

powers have from time to time been granted to them by Local Acts, even up to the present Session.

XII. Since the passing of the Act 5 & 6 Will. 4. c. 63., in 1835, there has been no parliamentary inquiry into the general working of the Act, and little information on the subject has been furnished, except in occasional returns to Parliament of the number of local standards verified in the Standards Department, and of the number of convictions for false or defective weights and measures in certain localities for specified periods.

No parliamentary inquiry since 1835.

XIII. It has been already stated in s. 11 of our First Report, that the Commission have endeavoured to obtain the fullest information of the amount of the duties performed by the Inspectors in the several districts of inspection, and that the requisite returns had been received from these local officers. This information is in some degree incomplete as regards Great Britain, no returns having been received from 65 districts of inspection which had been furnished with verified copies of the official standards, and to which forms of returns were sent; but the whole working of the existing system of inspection of weights and measures has been sufficiently shown by the returns which have been made. Abstracts of these returns have been prepared for the Commission, and are now appended, containing the fullest details under the several heads.

Detailed returns now obtained.

App. III. and IV.

XIV. A summary of the statistical information thus obtained may be shown in the following tabular statements, in which is included such further information relating to the districts from which no returns have been received, as could be found in other official and parliamentary documents, as shown in the appended papers.

Summary of information thus furnished.

App. XII.

Number of Officers, Districts, and Instruments of Inspection, and Amount of Duties performed by Inspectors of Weights and Measures.

In 1866.	Great Britain.	Ireland.	United Kingdom.
Total Number of Inspectors, and Districts of Inspection of Weights and Measures	731	624	1,355
,, Local Standards in use	21,666	931	22,597
,, Sub-standards in use in Ireland	—	13,719	13,719
,, Balances used by Inspectors	2,213	1,275	3,488
,, False and defective Weights, Measures, and Balances seized by Inspectors	18,060	8,993	27,053
,, Convictions	6,094	2,956	8,050
,, Weights and Measures stamped by Inspectors	2,427,549	400,206	2,827,755

Out of the total number of Inspectors in Great Britain, 476, or 66 per cent., appear to be police officers. In Ireland, all the Inspectors are constabulary officers, acting ex officio as Inspectors of weights and measures, and receive no special remuneration for the performance of these duties :—

Receipts and Disbursements, in respect of such Inspection.

In 1866.	Great Britain.	Ireland.	United Kingdom.
	£	£	£
Total Amount of Penalties	4,730	599	5,329
,, Costs	1,638	159	1,797
Total Receipts applicable to Expenditure, viz. :—			
Proportion of Penalties	2,935	—	2,935
Produce of Weights, &c. seized	208	1	209
Fees for Stamping	6,321	12	6,433
,, Adjusting	3,723	295	3,918
Total Receipts	13,187	308	13,495
Total Expenditure, viz. :—			
Salaries and emoluments of Inspectors—			
other than Police Officers	10,172	—	10,172
of Inspectors, who are Police Officers	3,405	—	3,405
Total salaries and emoluments	13,577	—	13,577
Other disbursements	4,617	759	5,376
Total Expenditure	18,194	759	18,953

The stated proportion of penalties applicable to expenditure is taken from the returns. It would appear that the remaining proportion is paid to the local treasurers in aid of the general local funds, not being specially applicable to the expenditure for weights and measures.

The remuneration to the Inspectors of weights and measures in Great Britain, who are police officers, appears to be nominal only, and merely sufficient to defray their actual expenses. Out of the whole number of inspectors who are not police officers, 46 only appear to have no other occupation, their salaries and emoluments amounting to 7,003*l.*

App. XII. p. 379.

Nonpayment in Ireland of fees of verification.

XV. We feel it to be our duty to call attention to the nonpayment of fees for verifying and stamping weights and measures, which are payable by law to the Inspectors in Ireland, but have not been charged since the passing of the Weights and Measures (Ireland) Act, 1860, under, as it now appears, a mistaken construction of the provisions of that Act. Some official correspondence upon this subject is contained in the appended abstract of the returns from Ireland, and it may be seen that the responsible heads of the executive government have considered it inexpedient to alter the existing practice.

App. IV. p. 250.

When the whole question of the amendment of the laws relating to weights and measures shall be brought under consideration, it will be for Parliament to determine what course shall be taken with respect to the fees for verifying and stamping weights and measures in Ireland, and whether they shall not be collected there as in Great Britain. We are strongly of opinion that one uniform practice in this respect should be adopted, and that such fees should be chargeable by law, and be actually charged in both countries. It appears to us that by an improved system of verification and periodical reverification of weights and measures, the receipts from these sources of local revenue may be made to exceed the whole expenditure under this head in the several districts throughout the United Kingdom.

As to cost of improved system.

XVI. The important question of the expenditure to be incurred in the several localities in consequence of the adoption of our recommendations relating to the verification and inspection of weights and measures, has engaged the special attention of Your Majesty's Commissioners.

App. VI. p. 273. App. XII. Pownall, Q. 2993.

We are satisfied from the information which has been laid before us that much of the unwillingness and negligence shown by the local authorities of many districts in carrying out the provisions of the existing laws has been mainly caused by their reluctance to entail any material increase in the burden of their local rates.

In the framing of the recommendations which it has now become our duty to submit to Your Majesty, the Commission have kept steadily in view the great object of increasing the efficiency of the system both of verification and of inspection, without any serious addition to the expenditure to be defrayed by the ratepayers.

App. XII. p. 415.

Even under the existing system of verification, from which the actual receipts have mainly arisen, and which we are persuaded is adopted to a very insufficient extent, it has been shown to us that in many districts, and more particularly in the large and important city of Manchester, a well-conducted system of verification and inspection can be efficiently carried out so as to be nearly, if not quite, self-supporting.

Such receipts may be largely increased by the establishment of an extended and uniform system of verification and periodical reverification. The trading community in general, by whom the fees will have to be paid in the first instance, will be benefited by being less exposed to the penal consequences of the law, except in cases of fraud or culpable negligence.

Its advantage not to be judged by its cost.

XVII. Nor is the real advantage of an efficient system of inspection to be judged only upon the narrow ground of its cost. Conclusive evidence has been produced before us of the great benefit arising to the public, and particularly to the poorer classes, from a vigilant inspection of weights and measures, acting as a preventive of fraudulent and negligent practices.

App. XII. p. 416.

We confidently anticipate that by the effective adoption of our recommendations for an improved system of verification and inspection, not only will the present large number of cases which occur annually throughout the kingdom, of persons proved to be in the possession and use of unjust and fraudulent weights and measures and balances, be considerably diminished, but much fraud now practised in connexion with the weighing and measuring of commodities sold to the public, as well as purchased from them,

in respect of which the existing law affords no sufficient protection to the public, will be detected and punished and thus eventually prevented.

XVIII. In regard both to the verification and the inspection of weights and measures, we are satisfied that the chief defect in the existing system, consists in the want of an efficient central control and supervision over the local officers and the execution of their duties. Without such control and supervision there can be no security that those duties are properly and uniformly discharged, nor that the requirements of law are duly complied with. The authority over the standards of weights and measures being now vested by law in the Board of Trade, we are of opinion that the powers of the Board of Trade should be extended and be made to comprehend a control over the appointment and the discharge of the duties of the local officers, as well as their standard equipments.

Want of efficient control and uniformity in existing system.

XIX. This official control over the appointment of these local officers should, in our judgment, be limited to seeing that duly qualified persons are appointed, and that their remuneration is sufficient to induce them to discharge their duties faithfully. As to the control over the performance of their duties, we think it should comprehend not only the issue of authoritative instructions for this purpose, as well as of general regulations for the construction of all weights and measures, and of balances and other weighing instruments, but also the actual supervision of officers appointed for such duties by the Board of Trade, with the view of securing that all the official regulations and instructions are properly complied with.

Powers proposed to be granted to Board of Trade.

For the due execution of these large powers of control, the Board of Trade would be responsible to Parliament, before whom copies of all their regulations and instructions should be laid from time to time. The preparation of these important regulations and instructions will be much facilitated through the precedents afforded by those authoritatively issued in France, in the States of the North German Confederation, and in the United States of North America, full details of which have been furnished to the Commission, and are appended to their Reports.

XX. We are satisfied that the experience of the working of the Act of 1835, does not warrant the continuance of the system then for the first time established, of entrusting to the same local officer the duties both of verification and of inspection of weights and measures.

Proposed distinct systems of verification and inspection.

These duties are essentially distinct in their character, the first being of a more technical description, for the performance of which special qualifications are requisite, and the other simply a police duty. It has been proved to us also that when a single officer is charged with the execution of these two different duties, whilst he is performing one, he must neglect the other. These considerations, and other reasons herein-after recited by us, have led us to the conclusion that the verification and the inspection of weights and measures should be established by law, and carried out in practice as separate and distinct systems.

Strugnell, Q. 2062.

XXI. Other material and extensive modifications in the existing system must necessarily follow so great a change in the mode of inspection established under the Act of 1835; and we propose to make various recommendations in relation not only to officers exercising the duties of verification and inspection of weights and measures, but also to the several districts of inspection throughout the United Kingdom, and to the persons in whom the local authority over the inspection in such districts may be vested.

Other changes in local districts, authorities, &c.

Our attention has been particularly directed to the inexpediency of such local authority being exercised in boroughs by members of Corporations and Town Councils, who are frequently tradesmen whose weights and measures are subject by law to inspection; and we may point out that the principle of transferring the local authority over the inspection from members of such corporate bodies, who are interested in such inspection, to the local magistrates, has been recognised in section 4 of the Sale of Gas Act, 1859, in which it is enacted that in all boroughs, as therein set forth, in which the Town Council is a manufacturer or seller of gas, the Justices of such borough shall exercise the power of adopting and carrying into effect the provisions of the Act.

XXII. It appears to us to be of much importance that amongst other extensions of the duties of the verifying officers, should be included the verification and stamping of all balances and weighing machines used for trading purposes, and that such verification and stamping should be imperatively required before these instruments are legalised for use. Such a system has already been established in France and the North German

All balances to be verified and stamped.

Confederation, and has also been adopted in the Netherlands by the law of 7th April 1869.

Allowance of errors in comparison of standards.

App. XII.

XXIII. With respect to the question of the amount of error to be allowed in the comparison and verification in the Standards Department of copies of the official Standards, upon which we have been commanded to report our opinion, we think that some modifications in the provisional scale now adopted in pursuance of the recommendation in our First Report which have been suggested to us by the further experience of the officers of the Standards Department, may properly be carried into effect. We think also that power should be given by law to the Board of Trade to issue regulations from time to time to determine the amount of error to be allowed in the Departmental comparisons of copies of the official Standards. It appears to us expedient that such power should be vested in a responsible Public Department, in order that modifications may be made in the scale from time to time, as may be warranted by modern improvements in the material Standards, or in the instruments of verification. A similar power is also obviously requisite for determining the amount of error to be allowed in the comparisons of all new Standards which may hereafter be legalised.

Question of allowance in commercial weights and measures.

App. XII. p. 410.

XXIV. The solution of the further question whether any or what amount of error should be allowed in the comparison with the local Standards of any weights and measures in common use, is dependent upon entirely different considerations from that of the allowance of error in Departmental comparisons, in which Standard accuracy is required. No such degree of accuracy is either requisite or obtainable in commercial weights and measures, nor do the same means exist in the several local districts, for the precise determination of errors such as the official instruments afford.

Although there are some grounds for recommending a definite allowance of error in commercial weights and measures, as well as in balances, and indeed the regulations established in France and throughout the North German Confederation in respect of Metric weights and measures, include such definite scale of allowance for errors, yet a full consideration of the question leads us to the conclusion that no alteration of the law is called for to sanction any scale of allowance for errors in commercial weights, measures, or in balances; and that no just cause of complaint will remain on the part of tradesmen, if the official instructions to Inspectors authorise a discretionary power in the exercise of this portion of their duties, and direct that they should not make seizures or lay informations for deviations from the Standards of a trivial character, but only in cases of culpable negligence or fraud, and such as may suffice for the protection of the public from loss by defective weights and measures. The magistrates should also be empowered to dismiss frivolous cases.

And in tradesmen's balances.

App. XII. p. 413.

XXV. Whilst this last question includes that of allowance for error in commercial balances and weighing machines, it also involves the much disputed point of an allowance in tradesmen's scales of a draught in their own favour. It appears now to be a general custom in certain trades for the tradesmen to have their counter-scales thus adjusted, and it is alleged that they are fully entitled to such draught in order to counterbalance the turn of the scale in favour of the buyer, which the public always demand.

A demand is thus made that one unjust practice should be met by the sanction of another equally unjust. We think that both practices are wrong, and that no definite allowance for draught in scales should be legally recognised.

Question of balance ball.

App. XII. p. 412.

XXVI. Another point connected with this part of the subject, and one which affects the interests of the trading class to a considerable extent, is the question of the legality of a balance ball, by which tradesmen's scales can be adjusted from time to time. Much evidence both in favour of and against the use of a balance ball has been laid before us. Upon the whole, it appears to us that this is one of those questions of detail which may properly be left to be regulated by a responsible Public Department.

We are of opinion that no sufficient grounds exist for absolutely prohibiting balances having this mode of adjustment, and that a balance ball may be allowed, provided that due precautions be enjoined by the official regulations to prevent balance balls being used to facilitate frauds upon the public.

Inspection of weights, &c., of Public Departments.

App. XII. p. 414.

XXVII. A consideration of the whole subject of the Inspection of Weights and Measures, has led us to inquire into the instruments of this description used by officers of the Post Office, Customs, and Excise Departments, or under their authority, with the view of ascertaining how far such weights and measures, as well as balances, are now

subject to inspection, and whether it might be desirable or expedient to bring them under the authority of the local Inspectors. Some correspondence upon this part of the subject is appended, in which it may be seen that full and satisfactory information has been furnished to us by these Departments, which has enabled us to make such recommendations as we think requisite. App. VIII.

XXVIII. It appears to us also of some importance to the interests of the public that we should call attention to the question of the Inspection of Weights and Measures at Canteens in Barracks, which has been brought under our notice, and is referred to in appended papers. And of Canteens in Barracks. App. VI. p. 293.

We are of opinion that the general provisions of the Weights and Measures law appear to authorise and require the local officers to inspect weights and measures in all canteens, which must be licensed by the local magistrates, and are thus brought under their jurisdiction; and that it is expedient that these provisions should be maintained, more especially as regards those canteens which are accessible to the public. App. XII. p. 430.

XXIX. Our inquiries have been extended to the discharge of other duties connected with or analogous to the inspection of weights and measures which are performed by the local Inspectors, some of which are of a large and important character. The objects of these duties may be classed under the following heads:— Other duties performed by Inspectors of weights and measures.

1. Sale and adulteration of bread.
2. Sale and adulteration of hay and straw.
3. Weighing of goods and carts in markets.
4. Sale and delivery of coals.
5. Testing of petroleum kept for sale.

Much information upon the law and practice under these heads is contained in the Appendix to this Report, and the several subjects appear to be deserving of further consideration. App. XII. p. 416.

(2.) Inspection of Gas Meters.

XXX. The system of verifying and inspecting gas meters is of recent origin, having been established under the Act 22 & 23 Vict. c. 66., passed in 1859. This Act provides that Inspectors of gas meters should be appointed in every county of the United Kingdom, and in every city and borough and town supplied with gas, the duties of such inspectors, in relation to the verification and inspection of gas meters, being analogous to those of Inspectors of weights and measures. (2.) Inspection of gas meters. Legislative provisions.

Soon after the passing of this Act, and before it came into operation, many complaints of its imperfections were made on the part of gas companies, and of manufacturers of gas meters, and Bills were consequently introduced into Parliament in the following Session to amend the Act of 1859, and were submitted to a Select Committee of the House of Commons, by whom evidence was heard and the subject fully considered. A Bill, as amended by the Select Committee, repealing the Act of 1859 and recasting it with further provisions, was submitted to the House, but at too late a period of the Session to be proceeded with. Nor has any proposal for altering the general provisions of the Act of 1859 been since brought under the consideration of Parliament. App. XII. p. 421.

A short Amending Act was however passed in 1860, which has materially interfered with the carrying out of the Act of the previous Session. The preparation of the gas-measuring standards not having been completed within the time fixed for the Act coming into operation, a further Act was required to extend the time, and a clause was introduced providing that notwithstanding anything contained in the Act of 1859, it should not come into operation in any county until the magistrates in quarter sessions, or other local authorities, should have resolved to bring the county under its operation.

The reasons for making this important alteration are contained in a letter to the Secretary of State for the Home Department from Earl Cathcart, chairman of the North Riding Quarter Sessions, dated 24th February 1860, which was laid before Parliament. The objections against adopting the Act were based on the alleged large expense it would entail on the great mass of the ratepayers, without any corresponding benefit except to comparatively few persons. No. 296 of 1860.

The magistrates of the counties in the Metropolitan District not having adopted the Sale of Gas Act, 1859, the powers conferred upon them were transferred by an Act passed in 1861, 24 & 25 Vict. c. 79, to the Metropolitan Board of Works, and have since been effectually carried out. On the suggestion of the Board, a Bill was introduced by the Government in 1863, for making some amendments in the Act of 1859, but was not proceeded with.

How far adopted.

XXXI. The insufficient extent to which the provisions of the Sale of Gas Act, 1859, have been as yet carried out, may be seen from the fact that the Act has been adopted, by the appointment of Inspectors and by providing verified copies of the gas-measuring standards, and official stamps of verification, in the following localities only :—

In 1 county (Gloucestershire).
7 Cities (including the City of London), which are Counties of Cities.
1 Metropolitan district, divided into 4 districts of Inspection.
44 Other Cities and Boroughs.

Total 53 Districts of Inspection of Gas Meters.

How defeated by clauses in local Acts.

App. XII. p. 424.

XXXII. It is important to observe that it has been shown to us that since the passing of the Act of 1859, powers have been obtained by various gas companies in their Local Acts, with the view of protecting their own interests, which powers have materially affected the working of the Sale of Gas Act, and tend to defeat its provisions. We think it essential that the attention of the Government and of Parliament be drawn to the necessity of taking effectual means for preventing the provisions of general law relating to the inspection of gas meters, being thus set aside by Clauses in Local Acts subsequently passed.

Necessity of more general and uniform system.

XXXIII. It has been shown to us that the use of gas is being largely extended from year to year, and we think that it is not a right principle of legislation that a general law enacted for the protection of the public at large, should be set aside in nearly every district throughout the kingdom, merely because the county magistrates do not volunteer to adopt it. As the law now stands, there is this dilemma, that the boroughs cannot, and the counties will not, adopt the Act of 1859. A consideration of all the circumstances of the case has led us to the opinion that the law in this respect requires amendment, and that it is expedient to establish a more general and uniform system of inspection of gas meters, such as is now established in the Metropolitan District.

Under supervision of Board of Trade.

XXXIV. To effect this object, it is in our judgment requisite that further provisions should be made with the view of securing the exercise of the duties of verifying gas meters by duly competent persons, and that the appointment of the officers and the execution of their duties should be placed under the control and supervision of the Board of Trade, as in the case of Verifiers of weights and measures.

Duties of inspectors of gas meters limited to their verification.

XXXV. It has appeared to us that the duties of inspection with a view to penal consequences which are required in the case of weights and measures used by tradesmen, are clearly inapplicable to gas meters used only by individual consumers, and although it may be expedient to maintain the legal power of inspecting gas meters by the local Inspectors, when called upon for this purpose either by the gas company or the consumer, practically the duties of inspection of gas meters, as distinct from their verification, will continue to be discharged by the inspecting officers of the gas companies, and the duties of the local officers charged with the inspection of gas meters will be limited to their verification.

Insufficient grounds of non-adoption of the Act by counties.

App. XII. p. 421.

XXXVI. The ground of objection successfully urged in 1860, on the part of the counties, against adopting the Act of 1859, viz. that of the expense, appears to us to have now lost nearly all its force. It has been shown to us that in the Metropolitan district, the annual receipts from fees for verifying gas meters now exceed the whole expenditure, and we think that if the provisions of the Sale of Gas Act were more generally adopted throughout the kingdom, it is probable that even in the more extended districts of inspection, where no separate inspecting officer of gas meters may be required, by the consolidation of the duties of verifying gas meters, and weights, measures, and balances, and by improvements in the system, the total receipts from fees of verification may be made considerably to exceed the total expenditure for the discharge of these duties.

Information now provided on working of the Act.

App. VII.

XXXVII. Some detailed information upon the working of the Sale of Gas Acts up to the present time, with suggestions for alterations in the law and practice, have been furnished to us by competent persons who are practically acquainted with the subject, and these papers are now appended.

Summary of the whole subject.

XXXVIII. In taking a comprehensive view of the whole subject of the inspection both of weights and measures and of gas meters, it appears to be of so extensive a character, and to involve so many points of detail, both as to the law and the practice, that without

going into further details, it may be sufficient for us here to refer generally to the full information given in the evidence of the several witnesses, and to that contained in the official papers laid before us, showing various serious imperfections and defects in the existing laws relating to the inspection of weights and measures, and of gas meters, and to their administration, including the discharge of the duties of the local Inspectors.

As the result of our inquiries into this large and important question, and after the best consideration we have been able to give to it, we concur generally in the views officially expressed by the Warden of the Standards for the amendment of these laws and in the consequent suggestions made for the establishment of a more uniform and efficient system; and as a proposed basis of legislation, we have unanimously agreed to the following resolutions and recommendations:— App. XII.

Resolutions.

Resolutions of the Commission.

§ A. Establishment of a more uniform and efficient system of verification and inspection of weights and measures.
§ B. Local authorities of districts of inspection and of verification.
§ C. Separate and distinct system of verification and of inspection of weights and measures.
§ D. Districts of verification, and appointment of Verifiers of weights and measures.
§ E. Duties of Verifiers of weights and measures.
§ F. Standards and other instruments of verification.
§ G. Inspectors of weights and measures.
§ H. Other duties connected with or analogous to the inspection of weights and measures.
§ I. Verification and inspection of Customs, Excise, and Post Office weights and measures, &c.
§ K. Proposed amendments in the Sale of Gas Acts.
§ L. Powers and duties of the Board of Trade in relation to the verification and inspection of weights and measures.
§ M. Other provisions.

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§ A. *Establishment of a more uniform and efficient system of Verification and of Inspection of Weights and Measures.*

Considering,—

That the Act of 1824 for establishing uniformity of weights and measures contained no provisions for uniformity of inspection of these weights and measures;

That the Act of 1835, under which local Inspectors were appointed, for discharging the duties both of verification and inspection of weights and measures, expressly sanctioned the continuance of existing powers and privileges of verification and inspection in the several localities;

That further powers for these purposes have since been granted by Parliament in public and local Acts;

That the want of uniformity in the several modes of verification and inspection constitutes a serious defect in the system now in force;

That, as regards Great Britain, no control or supervision by any responsible public department, over the appointment of Inspectors and the performance of their duties now exists, nor are adequate means provided for securing the due and uniform discharge of their duties;

That numerous complaints have been made in petitions presented to Parliament in recent sessions, and in documents laid before us, of the unsatisfactory state of the existing laws relating to the inspection of weights and measures, and praying for their amendment;

That full evidence of many defects in the existing law and practice has been submitted to us by competent witnesses, and is contained in the papers officially laid before us;

That in order to carry out advantageously the recommendations contained in our Second and Third Reports, relating to important alterations in the weights and measures now legalised for use, and more particularly the permissive introduction of metric weights and measures, it appears to us requisite that an improved system of verification and inspection be adopted, both in Great Britain and in Ireland;

We are of opinion—

(1.) That it is expedient to establish a more uniform, efficient, and responsible system of local verification and of inspection of weights and measures throughout the United Kingdom.

§ B.—*Local Authorities of Districts of Verification and of Inspection.*

Considering,—

That with respect to the local authorities under whom the inspection of weights and measures is now placed, it appears to us to be wrong in principle and injurious in practice, that such authority should be exercised in towns and boroughs by Corporations and Town Councils, members of which frequently are tradesmen using weights and measures subject by law to inspection;

That we are satisfied from the information laid before us that in many of such towns and boroughs the inspection is very inefficiently carried out, and the provisions of law relating to weights and measures very inadequately complied with;

That it appears from evidence laid before us that the inspection of weights and measures in many of such towns and boroughs of Great Britain has been voluntarily transferred to the county inspectors;

That the authority now exercised by lords of manors, courts leet, parish vestries, companies, and even private persons, whether by statute, charter, or prescription, is unsuited to the circumstances of the present time, and materially interferes with the establishment of a uniform and efficient system of inspection;

That it has been shown to us that it is expedient to amend the provisions of the Weights and Measures (Ireland) Act of 1862, requiring each petty sessional division of a county, and each borough in Ireland to be made a separate district of inspection of weights and measures;

We recommend,—

(2.) That the authority over the verification and the inspection of weights and measures in Great Britain be withdrawn from the control of all Corporations of Cities, Town Councils of Municipal Boroughs, Courts of Burgesses, Universities, Lords of Manors and Courts Leet, Ward Inquests, Parish Vestries, and other such corporations and persons in which it is now vested by statute, charter, custom, or local Act, and be transferred to the county magistrates, except in such of the more important and populous cities and boroughs as Parliament may determine; and that in such cities and boroughs to which the authority of the county magistrates over the verification and inspection of weights and measures shall not extend, the authority be placed in the hands of the local magistrates.

(3.) That the authority over the verification and inspection of weights and measures in Ireland remain with the Inspector-General of Constabulary, except in certain parts of the police district of Dublin Metropolis, as defined by the Act 30 & 31 Vict. c. 94, where it shall remain with the Commissioners of Metropolitan Police; and that the several local districts of verification and inspection shall be regulated from time to time by the Inspector-General of Constabulary, with the approval of the Board of Trade.

§ C.—*Separate and distinct system of Verification and of Inspection of Weights and Measures.*

Considering,—

That a manifest distinction exists between the duties of verification and those of inspection of weights and measures;

That the Verifier has to test weights and measures, and ought, in our opinion, also to test balances, for the purpose of ascertaining that these instruments are properly constructed and duly accurate, and of certifying to their correctness by a stamp, thus acting for the protection both of the tradesman and his customers, whilst the Inspector has only to satisfy himself that these instruments are not grossly defective or fraudulent, to the detriment of the public, in which case he is to take legal proceedings against the offender;

That the duties of a Verifier are performed chiefly in his office or workroom, being thus of an official or mechanical character, whilst those of an Inspector consist in visiting shops and other places of trade, and are of the nature of police duties;

That the discharge of the duties of a Verifier requires special qualifications, and far more technical knowledge and skill than those of an Inspector;

That previously to the passing of the Act of 1834, the duties of verification and stamping and those of inspection were always exercised by separate and distinct officers, and that even now these duties are so performed in many localities, particularly in the City of London, where, according to evidence received by us, they are very satisfactorily discharged;

That in France, Germany, and other countries, where much attention has been given by the authorities to the subject of weights and measures, special officers are appointed as Verifiers, whilst the duties of inspection are left to the police;

That under an improved system of verification in this country, and upon the legalisation of metric weights and measures, the duties of verification must necessarily be largely increased, and in order that these duties may be properly discharged, we are satisfied that it will be requisite to adopt means for securing the appointment of duly qualified Verifiers in the several localities;

We recommend—

(4.) That the duties of verification and of inspection of weights and measures be exercised by distinct officers.

§ D.—*Districts of Verification, and appointment of Verifiers of Weights and Measures.*

Considering,—

That it has been proved to us that the duties of verification of weights and measures are now exercised by not less than 1,355 separate officers, in as many districts of inspection in the United Kingdom, viz., 731 in Great Britain, and 624 in Ireland;

That out of the total number of Inspectors of weights and measures in the United Kingdom, at the present time, about 1,100, or more than 80 per cent., are police officers, who have their police duties to attend to, and who, as a general rule, have no remuneration for their services in relation to weights and measures;

That in Ireland, the duties of verification are performed in the 624 districts of inspection by as many separate officers of the Constabulary force, who are *ex officio* Inspectors of weights and measures, discharging these duties, under s. 5 of the Act of 1862, without fee or reward;

That the law now provides no security for the appointment of persons duly qualified to discharge the duties of verifying weights and measures, and makes no provision for their adequate remuneration;

That we are satisfied that such duties of verification are in general very imperfectly and inadequately discharged;

We recommend,—

(5.) That the several districts of verification in the United Kingdom be so arranged that one duly qualified Verifier, responsible for the duties of verification, be appointed in each county, or large division of a county, as well as in each of the larger and more populous cities and boroughs in Great Britain, to which the authority of the county magistrates shall not extend.

(6.) That the union, by agreement, of adjacent counties, for the purpose of verification of weights and measures, be authorised by law.

(7.) That Sub-Verifiers of weights and measures subordinate to the Verifier be appointed in such districts as may require them.

(8.) That the Verifiers give up their whole time to their duties of verification, if required by the local authorities, such adequate remuneration being given to them and to the Sub-Verifiers, by way of salary and not by fees, as the local authorities may determine, with the approval of the Board of Trade; and that the local authorities be empowered to award to them such retired or superannuation allowance as they may think fit.

(9.) That the Verifiers and Sub-Verifiers in Great Britain be appointed by the county magistrates, or by the local magistrates mentioned in Resolution 2, and in Ireland by the Inspector-General of Constabulary or the Commissioners of Dublin Metropolitan Police, the appointments of Verifiers being in every case subject to the approval of the Board of Trade.

(10.) That previously to such approval, and in order to show that any such person is duly qualified to act as Verifier, a certificate be transmitted to the Board of Trade by the local authorities that the Verifier nominated for appointment has passed such special examination before the Civil Service Commission, as the Board of Trade shall from time to time determine.

(11.) That such certificate from the Civil Service Commission be not required in first appointments under the new system, provided that the magistrates certify that such person is duly qualified to act as Verifier from his previous experience as Inspector of weights and measures.

(12.) That it be recommended in future appointments of Verifiers that they be selected from the class of Sub-Verifiers, and that in those districts where the inspection of weights and measures is exercised by officers of police, the duties of verification be generally entrusted to such officers of police, as being more especially qualified for the duties by their experience, habits, and knowledge of the locality ; and as an encouragement to their good conduct from looking forward to such appointments by way of promotion.

(13.) That the Verifiers be liable to suspension or dismissal by the local authorities, with the approval of the Board of Trade, for misconduct, neglect, or inefficient performance of their duties, or other sufficient cause.

(14.) That the expenses of verification in each district of verification be paid out of the local funds, boroughs paying their due proportion of sums expended out of the county rate, after deducting corresponding receipts in aid of such county rate, as provided by the Municipal Corporations Act of 1835 ; such expenses consisting of the salaries of the Verifiers and other expenses attending the the verification, including standards and other apparatus, and proper offices for the discharge of the duties ; and that all fees of verification be carried in aid of such local funds.

§ E.—*Duties of Verifiers of Weights and Measures.*

Considering—

That it has been proved to us that no uniform system of verification is now practised, instances frequently occurring of weights and measures being verified and stamped as legal in one district of inspection, whilst such are rejected as illegal in an adjoining district ;

That evidence produced before us has satisfied us that the law should provide against the sale and use of fraudulent and defective balances, by requiring them to be tested and stamped before being sold for use ;

That it is expedient for the protection of the public, and for establishing a uniform and efficient system of verification, that authoritative regulations should be laid down by a responsible public department for the construction and verification of all such balances and of weighing machines ;

That for the same reasons, and in order to carry out the recommendation in our Second Report for adopting conspicuous distinctive forms or marks for the several weights and measures of the imperial and of the metric system, it is expedient that similar regulations should be issued for the construction and verification of all such weights and measures ;

That similar regulations will be requisite for establishing a more uniform and efficient system of periodical reverification of weights, measures, and balances, and their stamping ;

That in order to distinguish more readily between weights and measures of the Imperial and of the Metric system, and between measures of capacity and vessels for containing liquids or other articles, it is expedient that all legal weights and measures should have their legal denominations legibly marked upon them ;

That it has been shown to us that it is now the practice in many districts of inspection for the inspector to adjust weights and measures before verification, and to charge a fee for such adjustment, and that frequently the work is very imperfectly done ;

We recommend—

(15.) That the duties of Verifiers of weights and measures consist in the custody, preservation, and use of the local standards and other instruments of verification, and the due discharge of the several services connected therewith, including the testing and stamping from time to time of all legal weights and measures and balances and other weighing instruments.

(16.) That they be responsible that the local Standards in their districts used for the purposes both of verification and inspection, be maintained in due conformity with the legal Standards, and be duly reverified from time to time at the periods prescribed.

(17.) That they perform their duties according to such instructions as shall from time to time be furnished to them under the authority of the Board of Trade.

(18.) That not only all weights and measures, but also new balances and weighing machines, be tested by the Verifier and duly stamped or marked by him, when found correct, before being sold for use or being used for the purposes of weighing or measuring commodities for buying or selling or transport.

(19.) That before stamping any new weight, measure, balance, or weighing machine, the Verifier see that it is properly constructed, according to the regulations of the Board of Trade.

(20.) That such regulations provide that the beams of all balances be steeled at their centres and bearings;

(21.) That every iron weight have only one leaden plug for adjustment, not larger than sufficient to receive the several stamps;

(22.) That all earthenware weights be prohibited, after a period to be specified, and that all glass weights and measures and earthenware measures be constructed and stamped or marked as shall be determined upon;

(23.) That all measures of capacity constructed of wood be of a cylindrical form, with a plain and even bottom, and not turned out of solid wood;

(24.) That before testing or stamping any weight or measure, the Verifier see that it bears its legal denomination legibly marked upon it;

(25.) That all new weights, measures, balances, and weighing machines, bear the stamp of the maker;

(26.) And that all lever weighing machines with special weights be constructed and adjusted so that the weights are of legal denominations; and that all such lever weighing machines now in use, having weights other than of legal denominations, be, after a specified period, altered and re-adjusted with weights of legal denomination, and, together with the weights, be duly verified and stamped.

(27.) That Verifiers stamp all new weights, measures, and balances with a verification stamp containing the number or distinctive mark of the district, and with a stamp denoting the year.

(28.) That such stamps of verification be provided at the cost of the Government by the Board of Trade, and furnished to the Chief Verifier of each district by the Warden of Standards.

(29.) That the stamps remain the property of the Government, reclaimable by the Board of Trade, through their officer the Warden of the Standards, at any time if occasion should so require it, in order to prevent an improper use being made of such verification stamps.

(30.) That on reverifying weights and measures in subsequent years, only the one or the two last cyphers of the date year in the same century be re-stamped.

(31.) That Verifiers charge such fees as shall be duly authorised from time to time by the Board of Trade for the comparison and stamping, or for the adjustment of weights, measures, &c., and that they duly account for the amount to the local authorities.

(32.) That no weight or measure of any other denomination than the official Standards be stamped by the Verifier, or be a legal weight or measure.

(33.) That all weights and measures, after re-adjustment, be compared and re-stamped by the Verifier, who shall charge the authorised fee.

(34.) That the Verifier do not re-stamp, during the same year, weights and measures previously stamped, and which he shall find upon comparison to be correct, but that he be empowered to charge the verification fee.

(35.) That every Verifier keep a book in which he shall enter minutes of all weights and measures, compared and stamped or adjusted, with the amount of fees received by him.

(36.) That all weights, measures, balances, or weighing machines used for trade purposes be reverified at least once in every year, and that the periodical reverification of such weights, measures, balances, and weighing machines be conducted by the Verifiers as they shall be required by the official instructions of the Board of Trade.

(37.) That no weight or measure which may be found defective or incorrect be mended or adjusted by a Verifier (unless it be a small rectification, for which no charge is made) except upon the special authority of the Board of Trade granted to such Verifier, who shall be empowered to charge a specified sum for amending and adjusting according to a scale to be approved by the Board of Trade.

(38.) That such authority may be granted upon application under the hands of two magistrates of the district, who shall certify that such permission for the

Verifier to adjust is needed to meet the requirements of the neighbourhood; and that the Verifier is himself competent to adjust, or has a competent mechanic or mechanics to work under him with all the necessary appliances.

(39.) That in case any weight or measure be found by the Verifier to be defective or incorrect, and be returned for re-adjustment, he shall always give a brief certificate of the error of the weight or measure so rejected.

(40.) That no Verifier be a maker of weights, measures, or balances.

(41.) That every Verifier make such returns to the Warden of the Standards, in relation to the instruments and duties of verification in his district, and in such specified form, as the Board of Trade shall from time to time require.

(42.) That he give such aid or assistance to Inspectors of weights and measures in the discharge of their duties as shall be required by the official instructions of the Board of Trade.

§ F.—*Standards and other Instruments of Verification.*

Considering—

That there is now no security for requisite care being taken of the local standards and other instruments of verification, entrusted to the custody of the local officers, nor for the requirements of law for their periodical reverification and due accuracy being properly complied with;

That evidence has been produced before us of various irregularities in the local reverification of the standards used by Inspectors;

That it has been shown in the First Report of the Warden of the Standards for 1866–7, that so far as could be ascertained, out of 301 cities and towns in Great Britain, which had been furnished with legal standards since the passing of the Act of 1824, the standards in 120 cities and towns, or 36 per cent. of the whole number, had not been duly reverified, and were consequently not legal standards; that out of 57 manors or liberties, the standards in 44, or 77 per cent., had not been duly reverified; and that the proportion of standards in Ireland which had not been duly reverified was nearly the same;

That no sufficient provision has been made by law, nor adequate means afforded to the local officers, for the verification of large weighing machines and weigh-bridges;

That we are satisfied that the provisions of existing law authorising the use, by Inspectors of weights and measures in Ireland, of sub-standards of iron for the verification of commercial weights and measures should be discontinued, iron being an unfit metal for such purpose;

That it is expedient that the recommendations contained in Reports of former Standards Commissions, and in our Second Report, for establishing mural or public standards of length, in populous towns, should be more generally carried into effect, such standards as have already been erected having been much used and found serviceable by the public;

We recommend—

(43.) That one complete set of all the local Standards required for his district of verification, duly verified at the Standards Department, be kept by the Verifier as Standards for reference, and that the weights belonging to such set be reverified at the Standards Department not less than once in every five years, and measures not less than once in every ten years, and oftener, if required.

(44.) That all other Standards required in his district for comparing and verifying commercial weights and measures, both for the use of the Verifiers and of the Inspectors (excepting supplementary iron 56 lbs. weights for testing weigh-bridges or weighing machines for heavy goods, waggons, &c.) be originally verified and officially stamped in the Standards Department, and may be locally compared and reverified by the Verifier in presence of a witness, with his Standards for reference, within the like periods.

(45.) That for the purpose of testing large weighing machines and weighbridges it be lawful for Verifiers and Inspectors to use such number of supplementary iron 56 lbs. weights as may be requisite, together with at least one local standard weight of 56 lbs. of suitable material, duly verified; and that every such iron 56 lbs. weight be cast with the number of the district in which it is used marked upon it, and be compared once a year by the inspector with a local standard weight duly verified, in the presence of a witness.

(46.) That a report of every such local reverification, attested by the signature of the witness, be transmitted by the Verifier to the Warden of the Standards,

who shall, if he approve such reverification, transmit his certificate accordingly, and the Verifier or other officer shall not use such Standards or supplementary iron weights for comparing weights and measures or weighing machines, until such certificate shall have been received by him.

(47.) That where there are several sets of local Standards in any county or district of verification or of inspection, which may be required to be reverified from time to time at the Standards Department, it be the duty of the Verifier and of the Inspector to take care that they are sent at different periods, so that there be as little suspension as possible of the duties of verification and inspection, and that a spare set of Standards be kept to supply the place of any set sent to London for re-adjustment and reverification.

(48.) That the provisions of the Weights and Measures (Ireland) Acts of 1860, 1862, and 1867 for legalising sub-standards of iron for the use of Inspectors of weights and measures, be repealed.

(49.) That the form, material, &c. of all local Standards, together with the balances, stamps, and other apparatus used by the Verifiers, be subject to such regulations as shall from time to time be issued by the Board of Trade.

(50.) That every Verifier have his Standards, balances, and other apparatus, ready for inspection at such place and time as may be fixed from time to time by any official Inspector of Standards duly appointed.

(51.) That no local Standard which may have become defective, and shall have been mended or re-adjusted, be legal, until reverified and re-stamped in the Standards Department.

(52.) That no local Standard which may have become defective, be adjusted by any Verifier or Inspector of weights and measures.

(53.) That mural or public Standards of length be securely fixed for public use in all populous towns, and the expenses connected with them be defrayed from the local funds. The local authorities to be responsible for keeping them in good order, and the local Inspectors to report to them periodically on their condition. These public Standards not to be valid for convictions of false or defective measures.

§ G.—*Inspectors of Weights and Measures.*

Considering—

That in regard to the duties of inspection, as distinct from those of verification, it appears to us to be a serious defect in the existing law and practice, that in several districts of inspection in the United Kingdom, wholly different classes of persons exercise the duties of Inspectors, there being also a great diversity in the mode in which these duties are discharged, as well as in the mode and amount of remuneration of the Inspectors;

That such duties of inspection are of the character of police duties, being exercised for the detection and punishment of offences against the laws;

That we find the practice has become very general in the counties of Great Britain, to employ the county police in these duties, and the plan is stated by the police authorities to work well;

That out of the 52 counties in England and Wales, the county police are exclusively thus employed in 42 counties, 4 out of the remaining 10 counties being wholly or partly in the Metropolitan district, where the county police are not under the authority of the magistrates; of 34 counties in Scotland, the police are thus employed in 23 counties; and that out of 463 county Inspectors of weights and measures in Great Britain, 396, or 85 per cent., are police officers;

That in Ireland the constabulary officers are exclusively employed in these duties of inspection, for which by law they receive no remuneration;

That as a rule officers of police who are employed as Inspectors of weights and measures in Great Britain get no additional remuneration for the discharge of these duties, their actual expenses only being repaid to them;

That it has been shown to us that, so far as could be ascertained from the returns for 1866, whilst the average population of each police inspector's district was 27,507, and other districts, 41,163, the average number of convictions in the year in each district were 5 and 19 respectively;

That whilst on the one hand, in many large and populous districts where the Inspectors were not remunerated for their duties of inspection, either by salary

or from a portion of the fines, no conviction whatever occurred from year to year; on the other hand, a great number of convictions occurred in the metropolitan districts, where the informer gets half the penalties, and a large proportion of the convictions were for small deviations in a single weight or measure out of the whole set, with no intention to defraud;

That evidence has been laid before us to show that the practice of giving a portion of the fines to Inspectors is most objectionable to tradesmen who are subject to inspection, and that they are loud in their complaints of the grievous oppression which they allege is caused by this practice and of their being consequently summoned for trivial deviations in their weights and measures;

That although there may be some advantage in granting a portion of the fines on convictions to the Inspectors, as stimulating them in the discharge of their duties, yet this practice is adopted only in few districts of inspection, and many objections exist against it;

That with the view to a uniform, efficient, and satisfactory discharge of the duties of inspection, it appears to us to be indispensable that the duties should be performed under a code of authoritative instructions, to be issued from time to time by a responsible public department;

That we think it also requisite that the control of such department should extend to a cognizance and approval of the appointment and remuneration, as well as the dismissal of every Inspector; and that detailed returns of the inspection exercised and of convictions obtained should be made to the department;

That it appears to us that there are material imperfections in the existing law, inasmuch as no power is given to an Inspector in Great Britain to seize (except in the public streets) even an evidently fraudulent balance, nor to interfere in any way when fraud is practised in dealings with weights, measures, and balances, provided these instruments themselves are correct; and that no difference is made in the provisions for penalties on convictions in the case of fraudulent or merely defective weights, measures, and balances;

We recommend—

(54.) That in all districts of verification of weights and measures, special officers of the police or other competent persons be appointed Inspectors of weights and measures by the before-stated local authorities, and charged with the duties of inspecting weights, measures, and balances, and the detection and prosecution of offences against the weights and measures laws.

(55.) That every such appointment be subject to the approval of the Board of Trade.

(56.) That the Inspectors be liable to suspension or dismissal by the local authorities, with the approval of the Board of Trade, for misconduct, neglect, or inefficient discharge of their duties, or other sufficient cause.

(57.) That such Inspectors be furnished by the local authorities with local Standards of weights and measures, duly verified and reverified from time to time, for the comparison of weights and measures.

(58.) That such of the existing Inspectors of weights and measures as the local authorities of the several districts shall think fit, subject to the approval of the Board of Trade, continue to exercise their duties either of inspection or of verification, and be paid such remuneration, by way of salary and not by fees, or a proportion of fines, but including compensation for loss of fees, or of their proportion of fines, as shall be awarded to them by the local authorities, with the approval of the Board of Trade.

(59.) That the local authorities in such districts be empowered to grant such retired or superannuation allowances to Inspectors of weights and measures as they shall think fit.

(60.) That in all districts of inspection where the duties are exercised by the police, the chief officer of police in each district be more immediately charged with and responsible for the duties of inspection of weights and measures, and the custody and care of the instruments of inspection, the actual duties of inspection being performed in the several sub-districts by officers of police acting under his directions, and specially selected for this purpose, such officers being as much as possible relieved from ordinary police duties.

(61.) That the chief officer of police in each such district, or the Inspector charged with these duties, make such returns to the Warden of the Standards

in relation to the inspection of weights and measures, and convictions, within his district, in such specified form as shall from time to time be required by the Board of Trade.

(62.) That the local authorities in each district be empowered to award such remuneration to the chief or other officer of police, or other inspector, for the discharge of the duties of inspection of weights and measures, as they shall think fit, with the approval of the Board of Trade; but that it be lawful for the Board of Trade to revoke this approval in case of any neglect of duty in relation to the inspection of weights and measures by such officer.

(63.) That every Inspector of weights and measures be empowered, without any further warrant from any justice than his instrument of appointment, at all reasonable times to enter all shops and other places within his district, where goods are exposed for sale or weighed for transport, and not only to seize and render liable to forfeiture all beams, scales, balances, and other weighing machines not exceeding 5*l.* in value, which appear to be fraudulently unjust, as well as false, defective, or unjust weights and measures, but also if they find that any fraud shall be wilfully committed in the using thereof; and that the several provisions for prevention of fraud contained in sections 14, 15, and 16 of the Irish Weights and Measures Act of 1862, be extended to Great Britain.

(64.) That any person who shall without due authority represent himself to be an Inspector of weights and measures, and shall act as such Inspector, be liable on conviction to a fine not exceeding 5*l.*, or to imprisonment not exceeding two months, as the magistrates shall determine.

(65.) That the county magistrates in Great Britain be empowered to adjudicate upon cases of offences against the weights and measures laws, arising from time to time in boroughs where the inspection of weights and measures is placed under their authority.

(66.) That any county Inspector duly appointed be empowered to exercise his duties of inspection in any city or borough within the county, provided no Inspector be authorised to be appointed for such city or borough.

(67.) That in all informations laid for offences against the weights and measures laws, it be distinctly stated whether the offence be committed "with fraudulent intent," or "with no intent to defraud," and that persons convicted of offences with fraudulent intent, in respect of weights, measures, or balances, or their use, or dealings in connexion therewith, be subject to a greater fine than offenders with no intent to defraud; and that in cases of a second conviction with fraudulent intent, the offender be liable to a heavier fine, or to imprisonment not exceeding two months, as the justices may determine.

(68.) That in all cases of convictions with fraudulent intent, or of culpable negligence, the magistrates take the necessary steps for publishing the name, place of abode, and business, offence, and sentence of each person convicted, in one or more of the local newspapers.

(69.) That the duties of inspection which consist of the testing the legality of weights, measures, and balances, be subject to such regulations as shall from time to time be issued by the Board of Trade.

(70.) That no commercial weight, measure, or balance, which may have become defective or incorrect, be mended or adjusted by any Inspector of weights and measures.

(71.) That in cases in which weights, measures, or balances may be found accidentally or trivially defective, without imputation of fraud or culpable negligence, the magistrates be authorised, if they think fit, to dismiss the case without inflicting a penalty.

(72.) That in all cases where stated quantities of any articles of food are made up in bags or parcels ready for sale in shops or public places, they shall have the weight or measure legibly marked upon them, and that Inspectors be empowered to require any three of each description of such bags or parcels to be produced before them, and to weigh or measure the same, and if found unjust, to seize them, and inform against the offenders, who, on conviction, shall be liable to a penalty.

(73.) That all proportions of fines and penalties, in connexion with weights and measures, as shall be awarded to the officer informing, be carried to the local funds applicable to the expenses of inspection.

(74.) That all expenses of inspection of weights and measures in the several districts of inspection be paid out of the local funds.

§ II.—*Other duties connected with or analogous to the Inspection of Weights and Measures.*

Considering—

That the proposed appointment of separate and distinct officers for performing the duties of verification and inspection will render it necessary to make provision by law for the discharge of other and analogous duties now exercised by the Inspectors;

We recommend—

(75.) That the several provisions relating to the weights and scales used by bakers, and to the weighing of bread, and to the adulteration of bread, &c. contained in the Bread Acts now in force in the United Kingdom, be repealed; and that the several enactments relating to the weights and scales used by bakers, and to the weighing of bread, with the exception of the provision requiring weights and scales to be carried by bakers when delivering bread, be embodied in the proposed Weights and Measures Consolidation Act, and the duties of verification of such weights and scales, and their inspection, including that of the bread sold, be exercised by the Verifiers and Inspectors of weights and measures.

(76.) That the several provisions relating to the adulteration of bread, &c. be embodied in a separate Bill relating generally to the adulteration of food or other articles, when it may be considered how far it is expedient to impose the duties of carrying out the Act in the different localities upon the Verifiers or Inspectors of weights and measures.

(77.) That the existing provisions of law, by which powers analogous to those of inspectors of weights and measures are conferred upon clerks of markets and hay weighers, be similarly dealt with.

(78.) That the same principle be carried out with regard to the existing provisions of law for the sale and delivery of coal, which should be made applicable to the whole of the United Kingdom.

(79.) That the existing provisions of law imposing upon the Inspectors of weights and measures the duties of testing petroleum, require amendment, with a view to establishing a uniform testing apparatus and mode of testing petroleum.

§ I.—*Verification and Inspection of Weights and Measures, &c. in Post Office, Customs, and Excise Departments, and at Canteens in Barracks.*

Considering that it is expedient to set at rest any doubts which may now exist as to the powers of Verification and Inspection of weights and measures, and other instruments for weighing and measuring, which are used in any public department, or under its authority,

We recommend—

(80.) That all weights and measures used by the Revenue Departments of Customs, Excise, and Post Office for regulating charges upon the public be of legal denominations, according to the official Standards of the Board of Trade, and be duly verified and stamped from time to time, either by the local Verifiers of weights and measures, or by departmental officers appointed by the authorities of the several departments, for the discharge of this duty.

(81.) That for such purposes the departmental officer of verification be furnished by the authorities of the Customs, Excise, and Post Office Departments with such copies of the Standards as they may require, to be duly verified from time to time by the Standards Department of the Board of Trade, within the periods prescribed by law for the reverification of copies of the Standards provided for the local Verifiers of weights and measures.

(82.) That upon the appointment of such officers of verification being notified to the Board of Trade by the departmental authorities, such officers be furnished by the Warden of the Standards with the requisite verification stamps, and with copies of the official instructions of the Board of Trade to Verifiers and Inspectors of weights and measures, with the view of aiding them in the performance of their duties.

(83.) That the periodical inspection and reverification of all weights, measures, and balances, used by officers of the Customs, Excise, and Post Office Departments for regulating charges made upon the public, be carried out by the departmental officer of Inspection and Verification appointed to discharge those duties, under the authority and responsibility of the heads of those departments. As respects the Post Office Department, that this provision apply only to the

scales and weights specially constructed for Post Office services only, and supplied by the Postmaster-General; and that all other scales and weights used both for Post Office purposes and for trading purposes by post office keepers be subject to inspection from time to time by the local Inspectors of weights and measures.

(84.) That with a view of checking from time to time the accuracy of the before-mentioned special scales and weights used in post offices, they may be tested by the local Inspectors of weights and measures, but not for the purpose of applying any penal consequences to postal officers. Any defects found in such scales and weights should be reported to the General Post Office, in order that they may be rectified.

(85.) That the local inspectors be specially authorised by law to inspect weights and measures, &c., at canteens in barracks, and to seize all such as may be defective and fraudulent, and take proceedings against the offenders; but that this power be subject to the general instructions of the Board of Trade and to such particular instructions as may be issued, in concert with the War Department.

§ K.—*Proposed Amendments in the Sale of Gas Acts.*

Considering—

That important amendments in the Sale of Gas Act, 1859, were fully considered and agreed upon by a Select Committee of the House of Commons in 1860, but have not since been embodied in an Amending Act; and that we are satisfied from information which has been laid before us, that it is expedient such amendments should generally be carried into effect;

That a short Amending Act was passed in 1860, containing a provision for allowing magistrates in counties the option of adopting the Act of 1859, the effect of which has been to make the Act of 1859 a dead letter throughout a great part of the United Kingdom, so far as regards the inspection of gas meters;

That the grounds of such provision appear in a letter from Earl Cathcart, dated 24th February 1860, which was laid before the House of Commons; but that it appears to us that there is now little force in the objections thus raised, which were based upon the apprehended large expenditure to be defrayed from county rates, and that such objections should no longer stand in the way of the application of a general law, and prevent the establishment of a uniform and efficient system of inspection of gas meters throughout the Kingdom;

That with the view of establishing such a system, it is obviously expedient to adopt the several regulations relating to the verification and inspection of weights and measures, so far as they may be properly applicable to gas meters;

That under the provisions of the Act of 1859, accurately verified copies of the gas-measuring standards, of a primary character and of similar construction to the official standards, have been supplied at the public expense to the Corporations of London, Edinburgh, and Dublin; and that it is expedient that provision should be made by which the standards thus supplied to the metropolitan cities of Scotland and Ireland may be made more serviceable to the public;

We recommend—

(86.) That the Sale of Gas Act, 1859, and subsequent Acts relating to it, be repealed, and their provisions re-enacted in the proposed Act for amending and consolidating the laws relating to weights and measures, with the following modifications:—

(87.) That such provisions be adopted in every county, and in every city and borough, throughout the United Kingdom, where gas is manufactured and sold, under the authority of Parliament, except in such counties in England and Wales in which the magistrates in quarter sessions, or in Scotland the Commissioners of Supply, or in Ireland the Grand Jury, shall determine, by a resolution to be passed within a limited period by a majority of not less than two-thirds of those present, that there are not sufficient grounds for adopting such provisions, a copy of such resolution being laid before the Board of Trade.

(88.) That the local authority over the inspection of gas meters be in all cases exercised by the county magistrates, except in the metropolitan district, where it should remain under the Metropolitan Board of Works, and in such cities and boroughs as Parliament may determine, with respect to the sale of gas, as well as in such cities and boroughs as may be situated in counties in which the local authorities stated in the preceding resolution shall have determined not to adopt the Act, where it should be exercised by the local magistrates.

(89.) That in all such counties, where no Inspector of gas meters may have been appointed, and copies of the gas-measuring standards provided, the duties of comparing, verifying, and stamping gas meters be exercised by the Verifier of weights and measures, who shall be furnished with the requisite gas-measuring standards and other appliances.

(90.) That no copy of the gas-measuring standards be legal that shall not have been reverified by the Standards Department within a period of ten years.

(91.) That no copy of the gas-measuring standards that shall have been altered or readjusted, after verification by the Standards Department, be legal until it shall have been reverified by the Standards Department.

(92.) That provision be made by law for authorising the Board of Trade, if they should so think fit, to make regulations for the verification at Edinburgh and Dublin, by the chief Verifier of those cities respectively, of copies of the gas-measuring standards used by Inspectors in the several local districts of Scotland and Ireland, by comparison with the primary copies deposited at the two metropolitan cities, and under the directions of the Standards Department.

(93.) That upon the verification by the Standards Department of such copies of the gas-measuring standards as may be provided for any new district, the requisite verification stamps for gas meters, bearing the number of the district, be furnished to the Verifier by the Warden of the Standards, without any charge for the same.

(94.) That from and after a specified period from the passing of the Act, all verification stamps for gas meters which have been furnished from the Standards Department for the use of inspectors of gas meters under the existing law, be no longer legal, and be returned to the Standards Department, and that new stamps for verifying gas meters be provided and issued by the Warden of the Standards, at the charge of the Department, to such districts as shall require them, bearing the proper number of the district.

(95.) That all such verification stamps shall be and remain the property of the Board of Trade, who shall be empowered to reclaim them upon sufficient grounds of misuse or otherwise.

(96.) That all such duties of verification and inspection of gas meters be exercised according to instructions and regulations to be issued from time to time by the Board of Trade, and that similar powers and authorities in relation to the construction, and the control and supervision of the verification of gas meters, and to the appointment, duties, and apparatus of the inspectors of gas meters, &c., be extended to the Board of Trade, as in the case of weights and measures.

(97.) That no gas meter be legal that shall not have been reverified and restamped within a period of ten years after being fixed and used.

(98.) That all the regulations for licensing or registering makers of weights and measures, &c., and for stamping such weights and measures with the mark of the maker, be made applicable to makers of gas meters, and to gas meters made and sold by them.

(99.) That in the comparison and verification of gas meters, the verification of their indices or registering apparatus, according to the official instructions of the Board of Trade, be included.

(100.) That every gas meter so compared and verified be marked with the number of lights it is constructed to supply, each light being computed to consume five cubic feet of gas per hour, with a pressure equal to a column of water 0·5 inch high.

(101.) That the fees for testing gas meters be regulated in pursuance of a scale to be notified from time to time by the Board of Trade, according to the number of lights which each meter is constructed to supply.

(102.) That the fees for the separate testing of the indices of gas meters be also regulated by the Board of Trade.

§ L.—*Powers and Duties of the Board of Trade in relation to the Verification and Inspection of Weights and Measures and Gas Meters.*

Considering—

That as regards the whole of the existing system of verification and of inspection of weights and measures and of gas meters, the great and principal defect appears to us to be the want of an efficient central control to give force and unity to local action, as pointed out in the report of the Select Committee on weights and measures, in 1862;

That without such control and authoritative direction, there can be no adequate security to the public for a uniform administration of the law, or a due compliance with its requirements, nor for the proper discharge of the duties imposed upon the local authorities and officers;

That it appears to us that these defects in the existing system may best be remedied by the requisite control and supervision over the local officers, and the duties discharged by them being exercised by a responsible public Department, and that this control be extended to the appointment and remuneration of these officers;

That the necessary powers for these objects should be given by law and should include the issue from time to time of authoritative instructions for the guidance and government of the local officers;

That in order to make such control effective and to secure that the official instructions are duly carried out and the duties of the local officers adequately performed, it is in our opinion requisite that supervising public officers should be appointed under the authority of such Department;

That it appears to us to be also expedient for the due protection of the public, that further provision should be made by law for securing as far as may be, that all weighing and measuring instruments sold for public use should be properly and justly made, and in accordance with the established regulations;

That for this object and in order to bring all makers of such instruments under the cognizance of a public Department, and render them in some degree responsible for their instruments, it is expedient that every maker and repairer or adjuster of these instruments should be duly registered, and that an annual license duty payable by means of a stamp upon the annual certificate of registration, should be imposed upon every such maker, and repairer, or adjuster, thus more completely carrying out the recommendation applicable to gas meters, adopted by the Select Committee of the House of Commons, in 1860, on the Bills for amending the Sale of Gas Act;

We recommend—

(103.) That the Board of Trade be charged with such powers in relation to the appointment, remuneration, and duties of Verifiers and Inspectors of Weights and Measures and of Gas Meters, as are mentioned in the preceding recommendations.

(104.) That two or more Inspectors of Standards be appointed by the Board of Trade as officers of the Standards Department, with adequate salaries and allowances for travelling expenses; and that they be subordinate to the Warden of the Standards, and report to him from time to time.

(105.) That each official Inspector of Standards be provided with sufficient copies of the official Standards, and such other instruments as may be requisite for comparing and verifying the local Standards and apparatus in the several districts of verification and inspection of weights and measures. That he proceed from place to place within the district assigned to him, previously giving notice to the Verifier, or the chief officer of police, or other chief Inspector, responsible for the duties of inspection of weights and measures, and of gas meters, to have his Standards, balances, and other apparatus ready for inspection at such place and time as may be fixed from time to time by such official Inspector, so that each district of verification and of inspection may be visited at least once in each year.

(106.) That it be the duty of the official Inspector of Standards to see that the office accommodation of each Verifier, and the Standards, balances, and other apparatus, are fit and proper for the execution of his duties, as well as the standards and other instruments of the Inspectors of weights and measures and of gas meters; and to ascertain, so far as lies in his power, that the provisions of the weights and measures laws, and the official instructions of the Board of Trade for carrying out the law, are duly complied with by such Verifier and Inspector.

(107.) That in case of any of the local Standards being found to be defective beyond an allowance to be fixed and determined from time to time by the Board of Trade, the official Inspector require them to be immediately adjusted and duly reverified by the Standards Department, provided he deem them fit to be corrected as Standards; and that if he find them to be defective or damaged so that they cannot be made fit Standards, he at once condemn them and cancel the official stamp upon them, so that they can no longer be used as Standards.

(108.) That in all cases after due notice shall have been given to the Verifier or chief Inspector by the official Inspector of Standards, that any of the standards in his custody are defective or unfit for standards, and such standards shall not have been duly adjusted and verified, or replaced with new standards duly verified, after the expiration of three months from the date of such notice, the Board of Trade, be empowered, upon the report of the Warden of the Standards, to direct the necessary steps to be taken for publishing in the local newspapers a notice that the district of verification or inspection is not furnished with legal standards of such denominations.

(109.) That in all cases in which such offices, balances, or other apparatus, other than standards, shall be found by the official inspector to be unfit for the proper execution of the duties of verification or inspection, he certify the same in writing to the Verifier or chief Inspector, and require that the necessary steps be taken for placing them in fit condition, and that he report accordingly to the Warden of the Standards; that he also require such Verifier or chief Inspector, within one calendar month, to report to the Warden of the Standards what steps shall have been taken in pursuance of the requisition of the official Inspector; and in the event of such steps not being considered satisfactory by the Board of Trade when reported by the Warden of the Standards, the Board be empowered to authorise him to require the local authorities at once to direct the necessary steps for placing such offices, balances, or other apparatus in fit and proper condition.

(110.) That authoritative instructions be from time to time issued by the Board of Trade to the several Verifiers of weights and measures, and inspectors of gas meters, with the view of ensuring uniformity of action in the execution of their duties, and due compliance with the laws as construed by the highest legal authorities.

(111.) That authoritative instructions be also issued to the chief officer of police or other chief Inspector in the several districts of inspection of weights and measures, with the view of ensuring uniformity in the mode of testing the legality of weights, measures, and balances.

(112.) That such instructions comprise all necessary directions for the form, material, and mode of construction of the local Standards, together with the balances, stamps, and other apparatus to be used by Verifiers and by Inspectors of weights and measures, and of gas meters, and for their preservation and use; and include also the scale of tolerance of errors in the official comparison and verification of local Standards.

(113.) That such instructions also comprise directions for the form, material, and mode of construction of all weights, measures, balances, weighing machines, and gas meters to be stamped by the Verifiers of weights and measures, and Inspectors of gas meters, and legalised for use.

(114.) That the Board of Trade be empowered to make regulations from time to time for comparing and verifying with the official Standards all weights and measures for scientific purposes or otherwise, in which special accuracy is required, and for charging such fees as shall be fixed by them for the comparison and verification of such weights and measures; but that no fee be charged for the official verification of local Standards.

(115.) That the Board of Trade be also empowered to make such special regulations as they shall deem fit for the testing of large station or other gas meters constructed to pass more than 10 cubic feet of gas at one revolution or complete action of the meter.

(116.) That all instructions and other regulations authorised by law to be issued and made by the Board of Trade in relation to the verification and inspection or otherwise of weights and measures and other instruments, be published in the London, Edinburgh, and Dublin Gazettes, and copies laid before Parliament not later than in the next session after the date of their issue.

(117.) That the Board of Trade be authorised to require the Verifiers and chief officers of police or other Inspectors of weights and measures and of gas meters to make from time to time such returns to the Warden of the Standards in relation to the execution of their duties of verification and of inspection, and in such specified form, as the Board of Trade shall think fit.

(118.) That every maker, repairer, or adjuster of weights, measures, and balances, or weighing machines, and of gas meters, be duly registered in the

Standards Office before the 31st January in every year, and a certificate of registry issued to him by the Warden of the Standards, bearing a 5*l.* stamp.

(119.) That the distinctive mark of every such maker be approved and recorded at the Standards Office, before being used.

(120.) That such mark be required to be stamped upon every weight, measure, balance, or weighing machine, or gas meter, before it is sold or used, under penalty.

(121.) That a penalty be imposed by law upon any maker who shall mark any such weight, measure, balance, or weighing machine, or gas meter, without being duly registered.

(122.) That a similar penalty be imposed upon any fraudulent imitation of the mark of such registered maker.

§ M.—*Other Provisions.*

Considering—

That it is in our opinion requisite that the important changes recommended by us to be made in the existing laws and practice relating to weights and measures should be introduced into Parliament on the responsibility of the Executive Government, and be supported by their authority;

That it has been proved to us that powers have been frequently granted by Parliament in local and personal Acts to corporations and persons, which powers are inconsistent with the provisions of the general laws relating to the verification and inspection of weights and measures and of gas meters, and tend to prevent the establishment of a uniform and efficient system;

We recommend—

(123.) That it is expedient that a Bill be brought into Parliament by the Government, at the earliest period, to amend and consolidate the laws relating to weights and measures and the Standards of weight and measure, and to the Sale of Gas, and for carrying into effect the preceding recommendations.

(124.) That provisions be also contained in this Bill for carrying out the recommendations of the Commission in their Second Report, relating to the permissive introduction of the Metric system of weights and measures into this country, and in their Third Report, on the abolition of Troy weight.

(125.) That all provisions of former Acts which relate to the Standards of weights and measures, and to the legalisation, verification, and inspection of weights and measures and gas meters, be repealed, such of the provisions as are not inconsistent with the preceding recommendations being embodied in the amending and consolidating Bill; and that the powers of verification and inspection of weights and measures granted by such Acts, or by charter, custom, or otherwise, shall cease and determine.

(126.) That provision be made for granting such compensation to the Founders' Company for any loss which may be sustained by them through abolition of their ancient rights of verifying brass weights, as the Commissioners of Her Majesty's Treasury shall think fit.

(127.) That tables of all the denominations of legal weights and measures be appended in a schedule to the Bill.

(128.) That the Executive Government take the necessary steps for the adoption of such means as may tend effectually to prevent the provisions of the general law for establishing a uniform system of verification and inspection of weights and measures and of gas meters from being defeated by clauses subsequently introduced into local Acts.

XXXIX. In our next and Fifth Report, we propose to lay before Your Majesty the results of our inquiries into the business of the Standards Department, and the duties of its officers, and more particularly into the condition of the official Standards and their verification, and the efficiency of the departmental apparatus and equipments. In that Report, and the Papers appended to it, it is hoped that there will be found the fullest and most detailed information upon the subject, including the scientific comparisons of Standards.

Reference to next and Fifth Report.

XL. Meanwhile, it may be satisfactory to state that the reverification of all the official Standards has now been completed. In addition to the Standard Avoir-

Completion of reverification of official Standards.

dupois Weights, Troy Weights, and Bullion Weights, the results of the reverification of which have been stated by us in our First Report, the official Standard measures of capacity, and of length, and the Gas-measuring Standards, have been accurately reverified and their errors determined. In no single instance has any material error been found in these official Standards, so as to affect injuriously the accuracy of the copies of the official Standards verified for the use of the local Inspectors, so far as regards the comparison of all commercial weights and measures. Under our sanction and superintendence, many new Standards have been constructed, or are in process of construction, together with the requisite apparatus for comparison and verification. Among these is a complete series of weights and measures of the Metric system, the verification of all of which, in relation to the primary Standards at Paris, is now nearly completed; and we can confidently express a hope that the Standards Department will soon be placed in a complete condition of efficiency for the most accurate comparison of all weights and measures required both for commercial and general use, and for chemical and scientific purposes.

Construction, &c. of new Standards of $\frac{1}{3}$ and $\frac{2}{3}$ oz. for postal services. App. IX.

XLI. Among the new Standard weights, the construction and verification of which will be shown in our next Report, are Standard weights of $\frac{1}{3}$ and $\frac{2}{3}$ oz. avoirdupois, weights of these denominations having been required for foreign postal services. The circumstances which have led to the construction of these Standard weights are shown in the correspondence now appended, to which we desire to call attention, and more particularly to the following recommendations upon the subject which have been passed by us, viz.:—

Resolutions of 2nd April 1870.

We recommend—

(1.) That Standard weights of $\frac{1}{3}$ and $\frac{2}{3}$ oz. avoirdupois for foreign postal services be immediately constructed and verified under the directions of the Warden of the Standards, with a view to such weights being constituted legal secondary standards under the provisions of s. 6 of the Standards Act, 1866.

(2.) That such is to be understood as a temporary arrangement only, until the whole question of the introduction of the Metric system of weights and measures into this country, and the more limited question of the adoption of Metric weights for Post Office services, be determined by Parliament.

(3.) That in any legislative measure to be submitted by Her Majesty's Government to Parliament for amending the laws relating to weights and measures, provision be contained that the 10 gramme weight be substituted for $\frac{1}{3}$ oz., as a unit for foreign postal services, at the earliest period at which the necessary arrangements for that purpose can be made by the Post Office authorities.

Resolution of 9th April 1870.

We have inspected the new Imperial weights of $\frac{1}{3}$ oz. and $\frac{2}{3}$ oz., which have been constructed in accordance with our Resolution of 2nd April 1870, and have been duly verified in the Standards Department, their weight in relation to the Imperial Standard Pound having been accurately determined. And we are satisfied that such weights are fit and proper to be constituted legal secondary Standards under the provisions of s. 6 of the Standards Act, 1866.

It having been stated to us that these Standard weights were required to be legalised at the earliest period, so that the requisite weights of legal denominations might be provided for carrying out the provisions of the recent Postal Convention with France, copies of these Resolutions have already been officially communicated to the Board of Trade, in order that the necessary steps might be taken for enabling Your Majesty, by Order in Council, to declare the same to be legal secondary Standards of weight, in pursuance of s. 6 of the Standards Act of 1866, 29 & 30 Vict. c. 82.

Construction, &c. of new Standard weights for coins.

XLII. Our attention has also been engaged in providing for the construction of new Standard weights for coins, in pursuance of the provisions of the Coinage Act of the present Session, by which new duties in relation to Standard weights for testing the coin of the realm, and Standard weights of each coin, are imposed upon the Standards Department of the Board of Trade. All the new Standard weights which in our

judgment are required by the Act to be made and duly verified, are now being constructed under our directions and superintendence. As soon as they shall have been actually verified in relation to the Imperial Standard of weight, it will be our duty to report them to Your Majesty as fit Standards to be legalised under the provisions of the Standards Act, 1866, in order that the further duties relating to them, which are imposed upon the Standards Department by the Coinage Act, may be duly discharged.

With regard to the inspection of coin weights used by, or in the possession of tradesmen and others, whose weights are generally subject to inspection by the local officers, as these coin weights are not used for the purpose of weighing commodities for sale or transport, it appears to us that the ordinary inspection by the local officers under the existing Weights and Measures Acts is not applicable to them, and that no such inspection is requisite.

We may at the same time refer to the provision contained in s. 17 of the Coinage Act, which renders any person knowingly using a coin weight not duly marked or stamped liable to a penalty not exceeding 50*l*. It appears also that informations can be laid by any person under the terms of the Act, whilst for offences under the Weights and Measures Acts, Inspectors only can lay informations. We think that there are not sufficient grounds for thus, for the first time, imposing this heavy penalty, and that the provision in question should be repealed. The remaining provisions for the punishment of fraud, and for invalidating any coin weight not duly marked or stamped, will in our opinion meet all the requirements of the case.

All which we humbly submit to Your Majesty.

G. B. AIRY.
COLCHESTER.
STEPHEN CAVE.
JOHN GEORGE SHAW LEFEVRE.
EDWARD SABINE.
W. H. MILLER.
H. W. CHISHOLM.

H. J. CHANEY,
Secretary.

7, Old Palace Yard, Westminster,
21st May 1870.

APPENDIX TO FOURTH REPORT.

PAPERS DELIVERED BY THE WARDEN OF THE STANDARDS.

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APPENDIX TO FOURTH REPORT.

APPENDIX I.

PRELIMINARY PAPER delivered by the WARDEN of the STANDARDS — On the RELATION of the STANDARDS DEPARTMENT to the LOCAL AUTHORITIES, and the LOCAL INSPECTORS of WEIGHTS and MEASURES.

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Local authorities for whom standards are by law provided and verified.

Before entering more fully into the details of the subject, it may be useful first to state in a tabular form the several local authorities in the United Kingdom, for whom copies of the Imperial standards are now to be by law provided, and are compared and verified in the department:—

Act.	Place.	Local Authorities.
5 & 6 Will. 4. c. 63. s. 17.	England & Wales—Counties	Justices at General or Quarter Sessions.
	Ridings or Divisions of Counties.	
	Counties of Cities.	
	Counties of Towns.	
5 & 6 Will. 4. c. 63. s. 44.	Universities of Oxford and Cambridge.	Chancellor, Vice-Chancellor, or Deputy.
22 & 23 Vict. c. 56. s. 4. / 24 & 25 Vict. c. 75.	Municipal Boroughs.	Town Councils.
5 & 6 Will. 4. c. 63. s. 17.	Scotland—Counties	Justices convened by Sheriff.
	Royal Burghs	Magistrates at General or Quarter Sessions.
25 & 26 Vict. c. 76. s. 7.	Ireland—Counties, including Ridings and Counties of Cities and Towns.	Grand Juries, or in default (s. 9), by Judges of Assize.
	Boroughs, including Towns Corporate.	Town Councils, or in default, by Chairman of Quarter Sessions.

The regulations under which the requisitions of these local authorities for the official comparison and verification of their standards are received and recorded in the Standards Office, are contained in the departmental minute of 10 June 1864, a copy of which is appended.

See (A.)

Copies of the imperial standards have also been officially verified from time to time for manors and liberties, under ancient charter or prescription, and for parishes under their Local Acts.

Under sections 4 and 5 of the Sale of Gas Act of 1859, 22 & 23 Vict. c. 66., gas measuring standards are to be provided for the same local authorities throughout the United Kingdom.

Other public officers or authorities for whom standards verified.

In addition to these local authorities in the United Kingdom, standard weights and measures have from time to time been verified, under the special authority of the several executive departments of Government, for the colonies and dependencies, for foreign governments, and for Government departments.

Since the passing of the Act of 1825, standard weights and measures have been verified in this department in twenty-nine instances for private individuals, but no such verification has occurred for many years past, the late Comptroller-General of the Exchequer having directed the discontinuance of the irregular course of verifying standards and issuing them "marked with the Exchequer seal "to private parties who cannot be held answerable for the "production when duly required, for their preservation "or their safety." According to the regulations laid down, standards officially verified should be "at once issued "and placed in legal custody, where they would be safe "from any fraudulent alteration or accidental injury, and "could always be produced when required for legal purposes in the hands of a responsible public officer."*

Relation of the Standards Department to the local authorities and Inspectors of Weights and Measures.

The subject of the relation of the Standards Department to the local authorities and Inspectors of Weights and Measures may be considered under two general heads:—

1. With respect to the local standards and apparatus, and their maintenance in due efficiency.

2. Generally as to the execution of the duties connected with these local standards.

1. With respect to the local standards and apparatus, and their maintenance in due efficiency.

With regard to the first of these two heads, it may be expedient to recite the several recommendations that have been made for increasing the efficiency of the Department, by establishing, in connexion with it, a more active supervision over the local standards and apparatus in the hands of the local officers of weights and measures, with the view of these standards being maintained in due efficiency.

In their Report, the Standards Commission of 1841, recommend (§ 77, 78) a general and complete system of inspection, in some degree similar to those of the Prussian and Sardinian Governments; that it be organized on a complete and uniform plan throughout the kingdom with gradation of officers, to whom the general control of the inspection and registration is to be entrusted. They suggested for the consideration of Government, whether these duties might not be efficiently performed by the officers of Excise.

System of supervision recommended: By Standards Commission.

It appears that in Prussia,† the local Commissioners for stamping weights and measures are subordinate to the Government Departmental Commission at Berlin, who are bound, as often as required, to examine the standards of the other Commissions, &c.

In Sardinia,† the Inspector of Weights and Measures at Turin is head of the Standard Department. He has two Assistant Inspectors under him. The local Standard-men, whose duties are analogous to those of the local Inspectors of Weights and Measures in this country, have to pass an official examination previously to their appointment as to their competency. It is the duty of these Standard-men to transmit their standards every five years to the Inspector for verification; and after the expiration of the fixed terms, officers proceed from the head Department whenever it is judged convenient, for the examination of weights and measures, to verify, with the assistance of the Standard-men, whether they are marked and accurate.

In his printed letter of February 1, 1859, to the Comptroller-General of the Exchequer, the Astronomer Royal stated his opinion that "the Standard Department should possess such authority over the persons employed on the part of the State in the official use of local standards and other apparatus as will enable it effectually to carry out the intentions of civilized Government in the institution of standards."

By Astronomer Royal.

The Comptroller-General, in his reply of February 9, 1859, while assenting generally to the views of the Astronomer Royal, adds his opinion:—

By Lord Monteagle.

"That a stringent and effective system of inspection and comparison of the local or secondary standards should be introduced, administered by public officers likewise. They should be employed from time to time to visit, to inspect, and to report on the state of those secondary or local standards. The registration of such standards would afford important elements for the evidence and record of such inspections and their results. The holder of these local standards should be subject to fine, penalty, and forfeiture, if the local standards were found defective, and their immediate correction or replacement should be enforced. The Inspectors should carry with them a portable working set of standards, which would be sufficient to establish a *primâ facie* case for ordering any local standards to be sent up to London for comparison with the Exchequer standards. It would be by comparison with the latter only that any fines or penalties should be imposed on the holders of the local standards. The effect of this system would be, I apprehend, to compel the local authorities to avert this liability to fine and censure by a vigilant attention to the state and condition of the standards, shown by their ready transmission to the Exchequer for re-verification and adjustment, whenever the effects of time, friction, abrasion, oxydation, or accident rendered such a process necessary. . . . It is obvious that the necessity for examination and adjustment will vary in proportion to the work done, and the greater or less use made of the local standards. Where commercial transactions are the most numerous, the risks to the local standards will be greatest, and the re-verifications ought to be more frequent. Accordingly, even under the present system, from Manchester, Liverpool, and London, the local standards are sent every year, or every second year. In rural districts, such constant attention will not be required."

With reference to these recommendations of the Astronomer Royal, and of the Comptroller-General, the following observations are contained in the Report of the House of Commons Select Committee on Weights and Measures, 1862, and are recited in the printed Treasury Minute of 26th February 1866, p. 4, appended to the First Report of the Warden of the Standards for 1866.

By Select Committee on Weights and Measures, 1862.

* Comptroller-General to Secretary of State for India, Nov. 25, 1861.

* Report, 1841, Appendix (M.), sec. 18.
† Report, 1841, Appendix (M.), sec. 25.

Appendix I.—*continued.*

"It is clear that no plan of reform can succeed, unless it is accompanied by a comprehensive and exact system of inspection. On this subject we have long been remiss. Local Inspectors are appointed by Magistrates in counties and boroughs. But we require the establishment of an efficient central establishment to give force and unity to local action."

The Committee proceeded to recommend "the creation of a Department, which, under Government responsibility and Parliamentary control, may impart life and circulation from the centre to the extremities of the system of inspection."

The following notes from the evidence given before this Select Committee, respecting the system of inspection in France, may here be stated.

Chevalier, 574. Chevalier, 577. Chevalier, 607. Chevalier, 611. Dickson, 3222.

The duties of the Inspectors of Weights and Measures in this kingdom are analogous to those of the "Vérificateur des Poids et Mesures" in France. These public officers are dependent on the Minister of Commerce, whose Department superintends the proper observance of weights and measures. Every Vérificateur has his own set of standards. Every Vérificateur has got an arrondissement which he verifies once a year regularly.

Observations of Treasury Minute of February 26, 1866.

With respect to the system of supervision thus recommended, and its connexion with this Department, the Treasury Minute of 26th February 1866, observes:

"My Lords doubt the expediency of extending the authority and forces of the chief officer of the Standard Department so far beyond the walls of his own office as to enable him to exercise control over the local Inspectors of Weights and Measures. The local officers are appointed by the local authorities, and are by law subject to their authority. With respect to the local standards, my Lords consider that the powers and duties of the chief officer of the Standard Department should extend only to his taking such steps as may be necessary for the due re-verification of these standards in any cases of neglect in sending these standards to be re-verified, after the period fixed by law for their re-verification has expired."

Proposed imposition of penalties on local officers for defective standards.

Before entering upon the general question of inspection over the local officers by Government officers, the recommendation of the late Comptroller-General, of imposing fines and penalties upon the local Inspectors if their standards were found defective, may be first considered. A new legislative enactment would be required to carry this recommendation into effect. Penalties are now imposed upon such Inspectors by section 29 of the Act 5 & 6 Will. 4. c. 63. for the following offences. They are liable to forfeit a sum not exceeding 5*l.* upon conviction, for every offence;

1. Of stamping any weight or measure without duly verifying the same by comparison with a copy of the Imperial Standard.

2. Of being guilty of a breach of duty imposed upon them by the Act.

3. Of otherwise misconducting themselves in the execution of their office.

Neither at the time of the passing of this Act of the 5 & 6 Will. 4., nor when the above recited recommendation of Lord Monteagle was made, did there exist any legal provision for the periodical re-verification of local standards, which was subsequently directed by section 1 of the Act 22 & 23 Vict. c. 56., passed in 1859. Under section 8 of this Act a penalty not exceeding 5*l.* is imposed upon every offender convicted of any offence against, or disobedience to the provisions of the Act, but there is no provision for making the Inspector responsible for duly sending the standards for re-verification, or for any defect in the standards of which he has the custody.

Any such legislative enactment would probably be a dead letter.

As to the general question of the expediency of imposing by legislative enactments penalties upon public officers for improperly executing their duties, experience shows that such provisions are very rarely, if ever, carried out. The Act 9 & 10 Will. 3. c. 28. for regulating the Exchequer, imposed penalties upon every officer and person employed in the office for any neglect of duty or misconduct. This Act was in force from 1697 to 1834, and there is, I believe, no instance of any such penalty having been actually imposed. A similar provision is contained in section 28 of the Act 2 & 3 Will. 4. c. 87. with respect to the clerks and other persons employed in the office of Registry of Deeds in Ireland, and has had no other practical effect than being made a ground for claiming increase of salary on account of the special and personal responsibility thus imposed upon them. I am not aware of any penalty having been actually imposed upon any Inspector of Weights and Measures under the existing provisions of law. In fact, any such officer holding office during pleasure would, if culpable, not be fined, he would be dismissed.

In regard to the special case of imposing penalties on local Inspectors of Weights and Measures, on the information of a Government Inspector, if his standards were found defective, there can be but little doubt that such a provision would practically be altogether a dead letter.

Number of sets of local standards now in use; of places where used; and of local Inspectors.

In considering the question of the relation of the Standard Department to the local Inspectors, in respect to both their standards and apparatus, and to the execution of their duties, and in order to form an opinion of the extent of the new duties proposed to be imposed upon the Department in connexion with these two objects, the first step should be to ascertain the number of sets of copies of the Imperial Standards now used in this kingdom, as well as the number of local Inspectors of Weights and Measures, and of the several districts or places in Great Britain and Ireland respectively, in which these standards are required for use.

Exact number cannot now be given from the records of the Department.

The records of this Department do not at the present time enable a strictly accurate statement of these numbers to be furnished.

The number of standards and of sets of standards which have been verified in the Department can be given, as well as the places for which they are verified; but there are no means of stating the exact number of local Inspectors, as their appointments are not notified to or recorded in the Department, nor the number of sets of standards actually in use, as there is no information of those which may have been discontinued in the several localities, from having become worn and defective, or from being transferred to other localities.

Fuller information in future furnished by Register of Verification of Standards, established in 1864.

A great step, however, has been taken towards furnishing the Department in future with more accurate information of these local standards, through the establishment of a system of departmental registration, by means of which every verified standard can now be identified, from having a progressive numero impressed upon it, which is recorded in the register, as recommended by the Astronomer Royal in his letter to the Comptroller-General of the 1st February 1859. This recommendation was subsequently carried into effect by the Assistant Comptroller's minute of the 28th July 1864, a copy of which is appended, and which shows also the form of this Register of Verifications. By this register every transaction in the Department connected with any standard verified since the date of its being established can be traced, and when brought for re-verification it can be at once seen if it may have been transferred to another locality. There is also an alphabetical index of the names of the places for which the several standards registered have been verified.

See (B.)

Approximate number stated. See (C.)

Sufficiently accurate information for the present purpose may, however, be given in an account herewith appended, which has been prepared by Mr. Chaney, under my direction. This paper contains a list of the places for which local standards have been verified since the passing of the Act of 1825, the number of sets so verified, the name of the officer to whom delivered, &c. The number of standard weights and measures verified since 1825, and re-verified since the passing of the Act of 1859, has been stated in Appendix III. to the Report on Standard Weights and Measures of 1863, by which it appeared that 1,355 indentures of verification of 34,130 standard weights and measures, including gas measuring standards, had then been issued for 757 places and 29 persons, the term "place" including counties and their districts and parts, cities, boroughs, towns, parishes, liberties, manors, isles, colonies, dependencies, foreign countries, and three Government Departments. In the account now appended a different arrangement is made. The number of "places" will appear to be less, as the counties include their districts and parts which were previously stated as separate places. It will be seen that the total number of 1,314 sets of standard weights and measures has been verified for 565 places. Of this total number, 139 sets have been verified for 69 places, viz., British colonies and dependencies, foreign Governments, British Government Departments, and for private use, to which the question of inspection does not extend. After deducting these, there will remain 1,175 sets, which have been verified for 496 places. These places are classed under the heads of counties, cities and towns, and manors, in England and Wales, Scotland, and Ireland respectively. The general result may be shown for Great Britain and for Ireland separately, as the laws for regulating weights and measures differ in their provisions for the two countries, viz.:—

Appendix I.—*continued.*

Abstract for Great Britain and for Ireland.

		Number of Places.	Number of Sets of Standards verified.	Probable Number of Inspectors employed.
England and Wales.	Counties	52	546	193
	Cities, towns, &c.	248	357	253
	Manors	57	60	29
		357	963	475
Scotland	Counties	34	53	35
	Cities, burghs, &c.	53	58	52
		87	111	87
Great Britain	Counties	86	599	228
	Cities, towns, &c.	301	415	305
	Manors	57	60	29
		444	1,074	562
Ireland	Counties	32	75	39
	Cities, towns, &c.	19	25	20
	Manors	1	1	—
		52	101	59
	Total	496	1,175	621

So far as can be estimated from the number of places for which standards have been verified, there are thus probably not less than 621 Inspectors of Weights and Measures in Great Britain and Ireland, of whom about 262 are officers of police, being *ex-officio* Inspectors.

Number of places the standards of which have not been duly re-verified.

In order to show that some authoritative inspection or supervision is imperatively called for with regard to these local standards, in order that they may be maintained in the due efficiency which the law requires, but has not provided sufficient means compulsorily to effect, a further statement of the number of places for which standards have been officially verified, but which have not been re-verified in pursuance of the Act of 1859, will be found appended. The population of each of these places, according to the last census, is shown in a separate column of this appended paper.

See (E.)

Proportions in Great Britain and in Ireland respectively.

It will be seen, from the summary at the end of this appended list, that, although in the case of a comparatively small number only of the counties, the local authorities have failed in sending one of their sets to be duly verified, the requirements of the law have not been duly complied with in a large proportion of the cities and other places. Out of 301 cities and towns in Great Britain which have been furnished with standards, 120, or 36 per cent., now have no standards which are legal. Out of 57 manors or liberties, 44, or 77 per cent., have none but illegal standards. The proportion of illegal standards is nearly the same in Ireland. In none of these places having illegal standards, can any conviction, under the Weights and Measures Acts, for unjust or defective weights or measures now be legally sustained.

Local re-verification in counties.

With regard to the counties both in Great Britain and in Ireland, the law requires one set only of the standards belonging to each county to be *officially* re-verified in this department, and allows the other sets to be *locally* re-verified by comparison with the set so officially re-verified. The effect of this provision is, that as 674 sets of standards have been verified in this department for 118 counties in the United Kingdom, 556 of these sets of standards, or nearly five out of every six, are never subjected to the official comparison and re-verification of this department, after having been originally verified there. This calculation does not include 18 cities and towns in England which are counties in themselves. A separate list of these

See (D.)

is appended. Of all these places, the city and county of Southampton alone has exercised the power of local re-verification thus allowed by law.

Proportion of county standards exempt from official re-verification in Great Britain and in Ireland respectively.

The facts will appear even much stronger when the cases of Great Britain and Ireland are taken separately. In Great Britain, out of 599 sets of standards verified for 86 counties, 513, or nearly six out of every seven, are not subject to re-verification in this department. In Ireland it would appear at first sight, from the summary in (E.), that a much smaller proportion of standards are exempt from official re-verification than in England. Out of 75 sets of standards verified for 32 counties, 43 only, or about four out of seven, are not required to be re-verified in this department.

Similar exemption of sub-standards in counties and towns of Ireland.

But the truth is that there is a very different provision of the law with respect to the local standards in Ireland from that which is in force in England. In Ireland, under section 7 of the existing Weights and Measures Act applicable to that country, 25 & 26 Vict. c. 76., sub-standard weights and measures of iron, or other sufficient material, are to be provided for each county and borough—not less than one set for each petty session district in any county and two sets for any borough. These sub-standards are required to be compared and verified with the county set at least once a-year, and are then to be taken as being to all intents and purposes the same as the county standards. But they are not required by law to be at any time compared and verified with the official standards.

No information whatever has ever been afforded to this Department of the actual number of sub-standards now in use throughout Ireland. But it is obvious that a very much larger proportion of the standards used not only in counties, but in cities and boroughs in Ireland, are exempt from comparison and verification in this Department than would appear from the numbers stated in (E.).

Practice of weights and measures makers to send circular notices of standards requiring re-verification.

Probably a still larger proportion of the local standards would remain un-reverified, were it not for the practice, (as I am informed,) of the principal weights and measures makers in London to send round circulars to the several localities with which they are connected in their business transactions, and to point out that the period has arrived when the standards require re-verification, at the same time suggesting that these standards should at once be sent to them for adjustment, and for subsequent re-verification in this Department.

Expediency of establishing a system of supervision, shown by large proportion of standards not duly re-verified.

The facts, however, that so large a proportion of the local standards are not duly brought to this Department for re-verification within the prescribed periods, and that so many local standards are altogether exempt from official verification and re-verification, appear alone sufficient to prove the expediency, if not the necessity, of establishing a system of official supervision, or inspection, in order to enforce not only the requirements of the law, but also the maintenance of these standards in due efficiency.

As to actual deficiency of local standards from wear and tear.

It may, perhaps, be considered that, although the local standards may not be officially re-verified within the periods prescribed by law, yet that this fact does not prove the standards to be defective, or that any practical evil or inconvenience results therefrom. As almost all the standards brought to this office for re-verification are previously sent to the manufacturers for adjustment, there are no means for stating officially the deficiency or error which may be caused in the standards in use by the Inspectors from wear and tear. Any such deficiency may be best ascertained from the manufacturers themselves. Some information has, however, been already afforded upon this subject.

Evidence before Standard Commission of 1841.

In the Appendix to the Report of the Commission of 1841,* the following evidence is stated of the deficiency of local standards arising from wear and tear:—

Mr. Bate:—"From the general practice he has had, the majority of flagrant abuses of the county standards would be, as in the case of the Tewkesbury standard 28 lbs. weight, which, after eight years' use, was 30 grains deficient."

Mr. Blackburn:—"The standards of the different cities, ridings, shires, towns, &c., ought constantly to be examined, re-adjusted, and verified, at least every twelve or eighteen months. Many cases had come to his immediate knowledge, when, in the course of two years, the standard 56 lbs. weight had become by wear 1½ ounce light, and the smaller weights light in proportion. But as it was to be feared the magistracy would never attend to suggestions, it would be advisable to make this compulsory, with a very heavy fine."

Mr. De Grave:—"The amount of wearing of standards varied very much, some sets being taken from place to place in a cart, others being kept in one place, or carried about by hand. He had known the 56 lbs. weight to be more than 2 ounces deficient, and the smaller ones in proportion. He referred to sets that had been out for many years, sets made in 1825, 1826, and 1827, which on being re-verified in 1834 varied considerably—the 56 lbs. weight from 3 drachms to 1 drachm; and on all occasions, the drachms, if not the ounces, so light as to render new ones necessary."

Messrs. Warner:—"The probable inaccuracy in a set of local standards, after having been in use for some years, and moderate care taken of them, would, on an average of sets, be found as under. (*See following tabular statement.*) The measures almost as frequently being found to exceed the required quantities, or deficient of it, while the weights would invariably be found deficient. The increase in the contents of the measures is supposed to arise from bruises, it being the general custom to put one in the other when conveyed from place to place, or using them in the markets, and not unfrequently the 56 lbs. weight inside."

Tabular statement of deterioration of local standards.

The following table shows the observed actual deficiencies arising from wear and tear in several standard weights and measures which were brought to the notice of the Commission in 1841, and are stated in Appendix L. to their Report, including the average deficiency mentioned by Messrs. Warner:—

* Report 1841. Appendix (K.), page 68.

Appendix I.—*continued.*

Description of Weight or Measure.	Weights of the County of Surrey verified Sept. 24, 1836, and again tested June 6, 1838.	Weights for Coventry in use since 1826 and tested in 1838.	Weights for County of Chester in use since 1835 and tested in 1838.	Weights for Kirton Lindsey.	Standards of Marylebone Parish tested in 1835.	Standards of Pancras Parish tested in 1835.	County Standards (Mr. Wade) in use 1½ year tested in 1840.	Messrs. Warner's Average Deficiency from Wear and Tear of some Years.
56 lb.	10 gr. light	118 gr. light	65 gr. light	66 gr. light	10 gr. heavy	12 gr. light	14 gr. light	¼ to ½ oz.
28 „	18 „	46 „	60 „	38 „	5 gr. light	4 „	18 „	½ to 1 oz.
14 „	2 „	38 „	40 „	10 „	2 „	7 „	3 „	½ oz.
7 „	7 „	36 „	30 „	6 „	Correct	8 „	6 „	¼ oz.
4 „	2 „	23 „	22 „	15 „	4 „	7 „	3 „	„
2 „	5 „	13 „	12 „	8 „	2 „	7 „	5 „	2 dr.
1 „	2 „	10 „	7 „	4 „	1 „	3 „	2 „	1 dr.
8 oz.	1 „	6 „	2·5 „	- - -	2 „	1 „	1 „	„
4 „	1 „	4 „	2 „	- - -	Light	Too light	1 „	„
2 „	1 „	2 „	1·6 „	- - -	Correct	„	½ „	„
1 „	Right	2 „	1·3 „	- - -	Light	Correct	Light	„
8 dr.	Light	1½ „	·7 „	- - -	„	Too light	„	„
4 „	Right	½ „	·5 „	- - -	Heavy	Too heavy	„	„
2 „	„	½ „	·4 „	- - -	Correct	Correct	„	„
1 „	Light	Correct	·4 „	- - -	Too heavy	„	„	„
½ „	„	- - -	·4 „	- - -	- - -	- - -	„	„
Bushel	- - -	- - -	- - -	- - -	2½ cubic inches large.	Correct	„	7 to 10 or 20 cubic inches.
½ „	- - -	- - -	- - -	- - -	Correct	Injured and erroneous.	„	7 to 12 cubic inches.
Peck	- - -	- - -	- - -	- - -	½ cub. in. small	Correct	„	12 cub. inches.
½ „	- - -	- - -	- - -	- - -	Correct	Too small	„	9 „
¼ „	- - -	- - -	- - -	- - -	„	Correct	„	2 „
Quart	- - -	- - -	- - -	- - -	„	„	Correct	1 „
Pint	- - -	- - -	- - -	- - -	„	„	„	1 „
½ „	- - -	- - -	- - -	- - -	„	„	„	½ „
Gill	- - -	- - -	- - -	- - -	„	„	„	¼ „
½ „	- - -	- - -	- - -	- - -	„	„	„	¼ „

The foregoing statements and observations relate only to the local standards of imperial weights and measures established under the Act 5 Geo. 4. c. 74.

Re-verification and supervision of gas measuring standards.

It now becomes necessary to refer to the local standards for measuring gas, under the provisions of the Act 22 & 23 Vict. c. 66., passed in 1859. This Act, though passed in the same session, was subsequent to the Act 22 & 23 Vict. c. 56., which enacted the existing provision for the re-verification of local standard weights every five years, and measures every ten years. There is no provision in the Sale of Gas Act of 1859 for the re-verification of the local gas measuring standards. The provisions of the previously passed Act are applicable only to the local standards of imperial weight and measure, "used for the purpose of enforcing the provisions of the "Act 5 & 6 Will. 4. c. 63." In point of fact, no local gas measuring standard has yet been re-verified in this Department.

The number of places for which gas measuring standards have hitherto been verified, together with the number of such local standards, is appended. It will be seen that since 1859 a total number of 156 gas measuring standards has been verified for 47 places in the United Kingdom. In each of these places an official gas meter inspector is appointed, who is charged with the custody of these standards, and who executes the duties of comparing, verifying, and stamping the gas meters in common use within his district.

See (F.)

There can hardly be a doubt that a compulsory periodical comparison and re-verification of these local standards for measuring gas is still more required than for the other local standards, as they are far more elaborate instruments, and more likely to get out of order.

Under section 4 of the Standard Act of last session, all the Board of Trade standards of length, weight, and capacity, including the gas measuring standards, are to be re-verified every five years. It yet remains to be ascertained whether or how far the official gas measuring standards have become deteriorated or defective since their construction and original verification in 1859. When this fact has been ascertained, a better opinion may be formed of the number of years that should be allowed to elapse without requiring a comparison and re-verification of these local standards for measuring gas, and which should be provided for by legislative enactment. In the meantime, it is obvious that if any system of supervision of the local standards of imperial weights and measures is to be established, it should be extended to the gas measuring standards.

Necessity of establishing system of official supervision thus fully shown.

This evidence of the deterioration of the local standards of imperial weights and measures is an additional proof of the propriety of establishing a system of official supervision over all the local standards. It is obvious that if it is requisite thus to inspect the standards which are from time to time brought to the official Department for comparison and re-verification, there is much greater necessity for establishing a supervision of those local standards which are not brought periodically under the notice of the Department, as well as a supervision of the balances used by local Inspectors, of which hitherto the Department has had no cognizance whatever. Should the establishment of such a system be determined upon, the following suggestions refer to the mode in which it may be practically carried out.

Suggestions for practically carrying out such a system.

Considering the extent of country and the number of standards and apparatus to be inspected, it would probably be found necessary to appoint more than one Inspector of Standards and to assign a distinct district to each. These Inspectors should be made subordinate to the Warden of the Standards, to act under his directions, and to report to him from time to time. They should possess the necessary qualifications for their office, and should have adequate salaries assigned to them, together with an allowance for travelling expenses.

Each Inspector of Standards should be provided with sufficient copies of the official standards for comparing and testing the local standards and apparatus. He should proceed from place to place within his district, previously giving notice to the several local Inspectors to have their standards, balances, &c. ready for inspection, at such place and time as he may appoint. The inspection may be made at the principal town of each county, or division of a county, as may be found most convenient. The periodical inspection of the several standards to be made from time to time at such periods as their probable deterioration from wear and tear may be judged to require. In case of the standards, balances, &c. being found to be defective beyond an allowance to be fixed and stated, the Inspector of Standards to require them to be immediately adjusted and the standards to be duly re-verified within a period to be specified, not exceeding two months. Until so re-verified, either at the Standards Department, or locally, as provided by law, in which last case the re-verification should be certified to the Warden of the Standards, the standards to be no longer deemed legal, and the Warden of the Standards to specify all cases of such defective standards not having been duly re-verified in his annual Report to the Board of Trade and to Parliament.

How far legislative authority required.

To give to the officers of the Department the necessary powers and authority for carrying out such a system of inspection over the local standards add apparatus, a new legislative enactment would appear to be required. Section 10 of the Standards Act already authorizes the Board of Trade to "to appoint and employ so many clerks and subordinate officers, and at such salaries, as the Commissioners of Her Majesty's Treasury from time to time approve."

Evidence before Commission of weights and measures makers, and

It would however be very desirable in order that fuller information may be furnished to the Commission respecting the condition of the local standards, and that they may be enabled better to judge how far it may be expedient to establish such a system of departmental supervision, that

Appendix I.—*continued.*

they should have before them the evidence of some of the principal makers of weights, measures, scales, &c., as well as of some of the Inspectors.

2. *Relation of the Standards Department to the Local Inspectors with respect to the execution of their Duties.*

A summary of the views of the Standards Commission and Committee with regard to the relation that should exist between the Standard Department, and the Local Inspectors of Weights and Measures, so far as regards the execution of their duties, is thus laid down in the Astronomer's Royal printed letter of 1st February 1859.

"As regards standards, every operation of the local body should be strictly under the cognizance of the State Government;

"The chief of the Standard Department ought to correspond with local magistrates and local Inspectors, and generally to act as intermediary between the Legislature on the one hand, and every officer concerned in the business of standards in the other;

"The general error in the practice of our Standard Office, I consider to be, that it is absolutely passive, only responding to demands; and the general correction, I consider to be, that it ought to be active, by its own proper motion establishing and maintaining in efficiency standards in all fitting places in the kingdom, the selection of such places being the duty of the Department itself (co-operating, as may appear desirable, with local authorities), and also supervising the general use of such standards in controlling the weights and measures used in transactions between man and man;

"The appointment of local Inspectors will probably be left with propriety to the local magistracy. But the appointments ought to be approved by the Comptroller of Exchequer, and registered in the Standard Office; and it ought to be made the duty of every such Inspector to receive instructions from, and to make reports to, the chief. On these points, the regulation of the Poor Law may probably be studied with advantage;

"Every prosecution under the Standard laws ought to be registered in the Standard Office."

In order fully to describe the duties now performed by the Inspectors of Weights and Measures, it may be convenient, first, to recite as briefly as may be, the several provisions of law relating to the weights and measures with which they have to deal, and regulating their mode of appointment and their duties.

The following provisions are applicable to these weights and measures in common use throughout the kingdom. They are chiefly contained in the Act 5 Geo. 4. c. 74., passed in 1824, "for ascertaining and establishing uniformity of "weights and measures." The preamble of this Act is as follows:—

"Whereas it is necessary for the security of commerce and for the good of the community that weights and measures should be uniform: And whereas notwithstanding it is provided by the Great Charter that there shall be but one measure and one weight throughout the realm, and by the Treaty of Union between England and Scotland that the same weights and measures should be used throughout Great Britain as were then established in England, yet different weights and measures, some larger and some less, are still in use in various places throughout the United Kingdom of Great Britain and Ireland, and the true measure of the present standards is not verily known, which is the cause of great confusion and of manifest frauds: For the remedy and prevention of these evils for the future, and to the end that certain standards of weights and measures should be established throughout the United Kingdom of Great Britain and Ireland, be it enacted," &c.

The first clauses of the Act specify the several legal imperial weights and measures, and provide for the several standards to be constructed and deposited at the Exchequer, and copies to be furnished for counties and other places. A list of the existing official standards, legalized under this Act and subsequent Acts, will be found in Appendix II. to the Fifth Report of the Standards Commission. The standards under the Act 5 Geo. 4. c. 74. are made applicable to all the weights and measures to be used throughout the kingdom by the following provision:—

"S. 15. From and after May 1, 1825, all contracts, bargains, sales, and dealings which shall be made or had within any part of the United Kingdom of Great Britain and Ireland, for any work to be done, or for any goods, wares, merchandize, or other thing to be sold, delivered, done, or agreed for by weight or measure, where no special agreement shall be made to the contrary, shall be deemed, taken, and construed to be made and had according to the standard weights and measures ascertained by this Act."

A further provision is contained in s. 16. for permitting the use of weights and measures established by local custom, but this provision, as well as that for weights and measures by special agreement, contained in the latter part of s. 15. was repealed by s. 3. of the Act 5 & 6 Will. 4. c. 63., and the following provision for abolishing local and customary measures, which is now in force, was enacted by s. 6. of the last-mentioned Act:

"From and after the passing of this Act, the measure called the *Winchester* bushel, and the lineal measure called the *Scotch* ell, and all local or customary measures shall be abolished; and every person who shall sell by any denomination of measure other than one of the imperial measures, or some multiple or aliquot part, such as half, the quarter, the eighth, the sixteenth, or the thirty-second part thereof, shall, on conviction, be liable to a penalty not exceeding the sum of forty shillings for every such sale: Provided always, that nothing herein contained shall prevent the sale of any articles in any vessel, when such vessel is not represented as containing any amount of imperial measure, or of any fixed local or customary measure heretofore in use."

A very erroneous construction has frequently been put upon the proviso in this clause, it having been considered as permitting the continuance of the use of local and customary measures.* On the contrary, the main provision of the clause is *to abolish all local and customary measures*, as stated in the margin, and the proviso only permits the sale of articles in any vessel where such vessel is represented as containing neither any amount of imperial measure, nor of any fixed local or customary measure heretofore in use. Its true construction is evident, that if such vessel is not represented to contain any amount of measure whatever, it is not illegal, thus declaring the very necessary distinction between a measure and a mere vessel. The proviso is really applicable only to such vessels as a *pot* of jam or pomatum, a *drum* or *box* of figs, a *punnet* or *basket* of fruit, a *can* holding a pennyworth of milk, &c., being vessels containing any quantity of a commodity determined by the price alone, and which commodities are not in fact sold "by any de-"nomination of measure."†

The decimal bullion weights established in 1853, under the Act 16 Vict. c. 29., are merely decimal multiples and part of the troy ounce legalized by the Act of 1824, and they were made supplementary to the Exchequer standards established by that Act.

In the same manner, gasholders legalized as measures of gas by 22 & 23 Vict. c. 66., in 1859, are merely measures of the cubic foot, and its multiples and decimal parts which were already established as legal measures of extension, under section 1 of the Act 5 Geo. 4. c. 74.

2. As to the appointment of local Inspectors and the duties assigned to them.

Before reciting the several existing legal provisions for the appointment of local Inspectors and the duties assigned to them, it may be interesting to give a brief statement of the mode in which these duties had previously been performed, and to refer to the laws directing their performance.

Ancient practice previous to appointment by statute of local Inspectors.

Previously to the passing of the Act 35 Geo. 3. c. 102., in 1795, "for the more effectual prevention of the use of "defective weights, and of false and unequal balances," the regulation and inspection of local weights and measures were entrusted to officers called "clerks of the market," or to other persons or juries, nominated at court-leets or by other local authorities. The ancient practice of enforcing the laws relating to standard weights and measures is fully described in the first report of Lord Carysfort's Committee in 1758.

Clerks of the Market.

The Act of 1795 recites an Act of 16 Charles 1. c. 19., "for "the better ordering and regulating of the office of clerk "of the market, allowed and confirmed by the Statute; "and for the reformation of false weights and measures," in which the powers and duties of the clerks of the market are defined, and who were to allow no other weights and measures than those according to the standard of the Exchequer. Clerks of the market were, however, instituted long previously to the time of Charles 2.

In an Act of the 24 Edw. 3. c. 12., passed in 1340, relating to weights and measures, it is stated, "And it is not the "King's mind but that the clerk of the market shall do "his office where he will, according as he was wont in

* See Report of Committee on Weights and Measures, 1862, page 9.

† "The mode of buying butter in the local markets has for some years past been by lump, or rather by the firkin. One market day last, one of our Tralee buyers, Mr. John Splentz, was attending in Kanturk, and, as usual, bought a quantity of butter by firkin. For so doing he was summoned by the inspector for a specific violation of the law by buying in Kanturk market a quantity of butter by lump, and not by the Imperial standard weights. When the case came before the magistrates, they declined to act without the advice of the Law Officers of the Government, to whom a statement of the facts of the case was submitted. In due time the answer came from the Law Officers, and it was to the effect that no offence had been incurred, and the magistrates were told that they should dismiss the summons, which was accordingly done."—From "Kerry Post," Sept. 30, 1863.

Appendix I.—*continued.*

"times past." This Act, which required certain standard weights and measures to be sent "into every county where "such standards be not sent before this time," also directed that "thereupon shall be assigned two good and sufficient "persons in every county, and more according as the "county in greatness requireth, to survey as well within "franchise as without, that the measures and weights be "according to the standard, and that they have power to "inquire, hear, and determine, and to punish all those that "shall be found thereof guilty." By a later Statute of 16 Richard 2. c. 3., A.D. 1392, it is enacted that the clerk of the market shall have all his measures and weights ready, according to the standard of the Exchequer, and signs and marks of the sign of the Exchequer thereunto ordained, and carry and bring the same with him at all times when he shall make the assay of weights and measures.

Courts-leet.

From a very early period, cognizance of unjust weights and measures in certain localities was entrusted to officers or juries nominated at a court-leet, or view of frank-pledge, or similar court, held under the lord of the manor or his steward. The statute for the view of frank-pledge is dated in 1325, the 18th of Edward 2. The authority of such persons appointed at any court-leet for any hundred or manor, in respect of weights and measures within their respective jurisdictions, was specially reserved by section 6 of the Act of 1795, and is still in force.

See 2 Geo. 1. c. 4. s. 3.

"Annoyance" Juries, instituted in 1266.

The institution of juries in cities and towns for the presentment and conviction of persons using false weights and measures (since known as "annoyance" juries, from the provisions of an Act 29 Geo. 2. c. 25.) is to be found in a statute of still earlier date. The Statute of the Pillory and Tumbril and of the Assize of Bread and Ale, made in 1266, requires that "six lawful men shall be sworn truly to gather "all measures of the town" and weights, "after which "thing done twelve lawful men shall swear to make true "answer to all such things as shall be demanded of them "in the King's behalf," and amongst other matters, "if "any do use false ells, weights, or measures." Offenders were to be "amerced for every default or be judged to the "tumbril," or to the pillory, "which they may use (if need "be) without bodily peril either of man or woman."

Local Examiners of Weights and Measures first appointed in 1795.

By the Act 35 Geo. 3. c. 102., local examiners of weights and measures were required to be appointed in the several parishes and townships throughout the kingdom by "the "justices at every quarter session of the peace to be held "for every county, riding, liberty, or division in England "and Wales," such person to be appointed to be the high constable of the hundred, who shall have power of examining within his hundred, or the constable and parish officer of a parish, who shall have the like power within the parish, or such other fit and proper person as the said justices shall in their discretion think fit. The powers of the examiners are defined in the subsequent provisions of the Act.

Further provisions in 1797 and 1815.

The Act of 1795 was explained and amended by another Act of 37 Geo. 3. c. 143. The power of appointing examiners by the justices at quarter sessions was repealed, and was transferred to the justices at petty sessions. It was also provided that a majority of the inhabitants of any parish or township should be empowered to nominate an examiner or examiners for such parish or township, to be approved and confirmed by the justices, upon proper weights and measures, according to the standard of the Exchequer, being procured. Additional powers against false weights were given by this Act.

Further powers for similar purposes were granted by the Act 55 Geo. 3. c. 43. in the cities, boroughs, and corporate towns of England and Wales.

Existing regulations for appointment and duties of local Inspectors. 5 & 6 Will. 4. c. 63. s. 17.

Local inspectors were first established in 1834, under the Act 4 & 5 Will. 4. c. 49., but this Act was repealed in the following session, and other provisions substituted.

The existing regulations for the appointment of local Inspectors of Weights and Measures, as well as for their powers and duties, are mainly laid down in the Act 5 & 6 Will. 4. c. 63., and are as follows:—

Appointment of Inspectors in counties, &c. of Great Britain.

The local magistrates of every county in Great Britain and of royal burghs in Scotland are to appoint a sufficient number of inspectors for the safe custody of the standard weights and measures within their respective jurisdictions; to allot a separate district to each inspector, and to direct what reasonable remuneration shall be paid to such inspectors for the discharge of their duties. They are empowered to suspend or dismiss any inspectors so appointed, or to appoint additional inspectors as occasion may require.

Sec. 21. Stamping weights and measures.

The inspectors are to be provided with stamps for stamping all weights and measures to be used in each county respectively, if such weights and measures, when examined and compared with one or more of the local standards, shall be found to correspond; for which they shall take such fees as are contained in a schedule annexed to the Act. Every person using any weight or measure other than those authorized by the Act, or not stamped as aforesaid (except that no single weight above 56 lbs., the largest standard weight, and no wooden or wicker measure for lime or similar articles, and no glass or earthenware jug or drinking cup, need be stamped), or which shall be found light or otherwise unjust, shall, on conviction, forfeit a sum not exceeding 5*l.*; and any contract, bargain, or sale made by any such weights and measures shall be wholly null and void, and every such light or unjust weight or measure so used shall, on being discovered by any such inspector, be seized, and on conviction of the person using or possessing the same be forfeited.

Penalties on unauthorized weights and measures.

The expense of providing local copies of the standards, and of remuneration to the inspectors, is to be defrayed out of the county or Royal burgh rates and assessments.

Sec. 22. Expenses of Standards and Inspectors.

No maker or seller of weights and measures is to be appointed inspector; and every inspector is to enter into recognizance in the sum of 200*l.* for the due and punctual performance of the duties of the office, and for the due and punctual payment of all fees received by him, and for the safety of the stamps and local standards committed to his charge, and for their due restoration and surrender to the persons appointed by the local magistrates to receive them, immediately on his removal or other cessation from office.

Sec. 23. No maker and seller of weights, &c. to be appointed Inspector. Inspector to enter into recognizances.

The Inspectors are to attend, with their stamps and standards, at market towns and other places within their respective jurisdictions, as the magistrates shall direct; and to examine, compare, and stamp, if found correct, all such weights and measures as shall be brought to them for that purpose; and to stamp also upon all measures, and all weights of a quarter of a pound and upwards, a number or mark to distinguish the district in which each acts; and to keep a book for entering all such comparisons; and to pay over quarterly all fees received by him to the Treasurer of the County, or other person appointed to receive them.

Sec. 24. Inspectors to attend at market towns.

Inspectors, with similar powers and duties, are to be appointed by the magistrates of towns and all other places who may be possessed of legal jurisdiction by charter, Act of Parliament, or otherwise. County Inspectors are permitted to inspect and stamp weights and measures within their respective districts, although they may be within such other jurisdiction, but they are subject to a penalty of 20*s.* for every weight or measure knowingly stamped by them within such other local jurisdiction, *for which another Inspector may have been legally appointed.*

Sec. 25. Appointment of Inspectors in towns, &c.

Weights and measures once stamped by an Inspector need not be re-stamped if used in any other place, but are to be considered legal weights and measures throughout the United Kingdom, unless found to be defective or unjust.

Sec. 27. Weights, &c. once stamped, legal throughout the kingdom.

Inspectors, authorized in writing by any magistrate, are empowered at all seasonable times to enter shops and other places within their jurisdiction, "where goods are exposed "or kept for sale, or weighed for conveyance and carriage," and to examine "all weights, measures, steel-yards, or "other weighing machines," and compare them with their local standards. If such weights and measures are found to be "light or otherwise unjust," they are liable to be seized and forfeited, and the person in whose possession they are found are, on conviction, to forfeit not more than 5*l.* All persons having in their possession a "steel-yard "or other weighing machine," found to be "incorrect or "otherwise unjust," or refusing or neglecting to produce for examination all such weights, &c., or otherwise obstructing or hindering such examination, is liable to a like penalty.

Sec. 28. Inspectors empowered to enter shops, &c.

Any Inspector stamping any weight or measure without duly verifying it by comparison with "a copy of the im-"perial standard," or guilty of any breach of duty under the Act, or otherwise misconducting himself in the execution of his office, is, on conviction, to be fined not more than 5*l.* for every such offence.

Sec. 29. Penalty on Inspectors for neglect or misconduct.

All penalties and forfeitures under the 5 Geo. 4. c. 74. and this Act, after deducting a part not exceeding one-half to be paid to the informer, if the convicting magistrate think fit, to be paid to the local treasurer, to be applied in aid of the fund liable to the cost of the local standards.

Sec. 32. Disposition of penalties in England.

In Scotland "the whole penalties, after deducting all "charges and such remuneration" to the prosecutor as the magistrates think fit, to be paid in aid of the funds liable to the cost of the local standards.

Sec. 33. And in Scotland.

The rights relating to weights and measures are specially reserved to weighmasters in Ireland, ward inquests in London and Southwark, Founders' Company, Universities of Oxford and Cambridge, leet and other juries, and examiners appointed under former Acts.

Sec. 41–45. Saving of rights.

At the period when Local Inspectors of Weights and Measures were thus established under the Acts of 1834 and 1835, the County and Borough Police Force had not been created. This police force was first established in 1839, under the Act 2 & 3 Vict. c. 93., but the officers of police

As to employment of the police as inspectors.

Appendix I.—*continued.*

were at first prohibited under s. 10. of that Act from acting as Inspectors of Weights and Measures, being restrained from employing themselves in any other office and employment for hire or gain. This restriction was removed by an amending Act of the following session, under s. 35. of 3 & 4 Vict. c. 88.; and it has now become the general practice in Great Britain, more especially in counties, for the local authorities to appoint Inspectors of Police to execute the functions of Inspectors of Weights and Measures established under the Act of 1835.

Bill for amending the Weights and Measures Acts, in 1850.

In 1850, a Bill was introduced into the House of Commons by private members (Sir J. Duckworth, Sir J. Yarde Buller, and Col. Clifford), to alter and amend the law relating to Weights and Measures: Provisions were inserted: 1. for abolishing Local examiners of Weights and Measures established by the Acts of 1795 and 1797: and 2, for increasing the powers of the Local Inspectors. The Bill was printed three times, having been twice amended in Committee, and on the last occasion the provisions for increasing the powers of Inspectors were struck out. But the Bill made no further progress than being reported to the House, and was then abandoned.

When this Bill was first printed, some written remarks upon its provisions which affected the duties of the Inspectors of Weights and Measures, were addressed to Mr. Brotherton, M.P. for Salford, by Mr. Mellor, the able and experienced Inspector of Weights and Measures at Manchester. These remarks have since been communicated to this Department, and are deserving of attention. They will be laid before the Standards Commission, together with the Bills to which they relate.

22 & 23 Vict. c. 56.

The provisions of the Act 5 & 6 Will. 4. c. 63. were amended and extended by the Act 22 & 23 Vict. c. 56. passed in 1859, but this latter Act did not extend to Ireland.

Sec. 1. Re-verification of local standards.

No local standard weight is to be deemed legal unless verified at the Exchequer within five years before being used, or local standard measure, unless so verified within ten years. In any county containing more than one district for the inspection of weights and measures, the standards may be compared within the same periods by the local Inspectors, in the presence of a local magistrate, with any local standard so duly verified at the Exchequer.

Sec. 3. Powers of Inspectors in public streets.

The powers of Inspectors are extended to weights and measures and balances used in public streets and places, as well as the infliction of penalties for offences under 5 & 6 Will. 4. c. 63.

Sec. 4. Appointment of Inspectors by town councils of municipal boroughs.

Town Councils of municipal boroughs having a separate Court of Quarter Sessions, are also empowered to appoint Inspectors, with all the powers and duties, and with all the penalties attaching to convictions under any Weights and Measures Act.

Extended by 24 & 25 Vict. c. 75. s. 6.

The provisions of this last clause were extended in 1861 to Town Councils of municipal boroughs having a separate commission of the peace.

Separate Acts for Ireland.

The provisions of the Act 5 & 6 Will. 4. c. 63. in relation to the local standards and to the appointment and duties of Inspectors of Weights and Measures in Great Britain, were also made applicable to Ireland, but many of them were repealed in 1860 by the 23 & 24 Vict. c. 119., under which Act, and a further amending Act passed in 1861, with which the Act of 1860 was incorporated, new and separate and distinct regulations were made for Ireland. It may be sufficient here to notice such of these regulations as are specially applicable to Ireland alone, and differ from those in force in Great Britain.

25 & 26 Vict. c. 76. s. 5. Appointment of constabulary officers *ex-officio* Inspectors of weights, &c. in Ireland.

Head or other constables only in each petty sessions district were directed to be appointed by the Inspector-General of Constabulary in Ireland, with the approval of the Lord Lieutenant, *ex officio*, Inspector of Weights and Measures within such district, to have all the powers and authorities, and be subject to the like penalties as Inspectors under 5 & 6 Will. 4. c. 63. or other Acts then in force, and to perform their duties without fee or reward, and notwithstanding any manorial jurisdiction or claim of jurisdiction within such district. A power is given to the justices to disapprove such appointment within one month, when another selection is to be made, subject to the same conditions.

Cap. 6. Sub-inspectors of constabulary to have custody of local standards in each county and borough, and to stamp sub-standards.

A similar provision, but without the condition of disapproval by the local magistrates, is made for the appointment of Sub-Inspectors of Constabulary to have the custody of the local standards in counties and boroughs in Ireland, and duly to stamp sub-standard weights and measures transmitted to them for that purpose.

Cap. 7. Grand jury and town council to provide local standards and sub-standards in each county and borough.

The Grand Jury of each county and the Town Council of each borough are to provide one complete set of local standards for each such county and borough respectively, and to provide not less than one set of *sub-standards* in iron or other sufficient material, and one set of accurate beams and scales for each petty sessions district in each county, and not less than two such sets for each borough; such sub-standards to be duly stamped by the Sub-Inspector. Good and sufficient stamps for stamping all weights and measures to be used in such county or borough respectively, are to be provided by such Grand Jury and Town Council.

23 & 24 Vict. c. 119. s. 8. Local re-verification of sub-standards every year.

Such sub-standards are, at least once a year, to be compared with the county standards, and to be adjusted and stamped by the Sub-Inspector, and shall then "be considered to all intents the same as the said county "standards, for all purposes of comparison, and other "purposes."

Sec. 15. Re-verification of local standards as in Great Britain.

A similar provision for that in Great Britain is made for the re-verification of the local standards of weights in Ireland every five years, and measures every ten years.

Secs. 9 & 10. Judge of assize and chairman of quarter sessions to provide standards, &c. for each county and borough, if not otherwise done.

The Judge of Assize is directed every year to order one complete set of local standards and sufficient sub-standards, together with beams and scales and stamps, to be provided for every county of Ireland when it has not been done by Grand Juries; and a similar direction is given to the Chairman of each Quarter Sessions, with respect to each borough within the county, when not done by the Town Council.

Provisions for payment of expenses under these Acts.

Sections 11 & 12 of the Act 23 & 24 Vict. c. 119. contained provisions for payment of the expenses incurred on account of the local standards, &c. by the Grand Juries out of the county cess, and by the Town Councils out of borough rates. But these provisions were repealed by section 3 of the Act of 1862, and no similar direct provisions were substituted except for the expenses incurred under the order of the Judge of Assize and Chairman of Quarter Sessions, under sections 9 & 10.

Disposition of penalties.

By sec. 21 of the Act of 1860, all fines and penalties imposed under these Acts are to be paid over and applied under the provisions of "The Fines Act, Ireland, 1851."

By this Act, 14 & 15 Vict. c. 90., all fines imposed in Petty Sessional Courts are to be paid to the Petty Sessions Clerk, who is made accountable. Under § 13. the Courts may award any sum not exceeding one-third to the prosecutor or informer, and the remainder shall be awarded to the Crown: but this provision does not apply to fines at the Divisional Police Offices of Dublin, &c. Under § 49. of the Irish Constabulary Act, 6 Will. 4. c. 13., all fines and penalties awarded to any constable are to form a fund called the "Police Reward Fund," which is made applicable towards paying such gratuities, superannuations, &c. as the Lord Lieutenant shall direct.

Duties of Inspectors extended to bullion standards, per 16 Vict. c. 29.

The powers and duties of the Inspector of Weights and Measures, both in Great Britain and in Ireland, were extended to all transactions in bullion standards under the Act 16 Vict. c. 29. passed in 1854.

Provisions for duties connected with local gas measuring standards, and inspection of gas meters.

Similar provisions to those relating to the local imperial standards were made for the duties connected with local gas measuring standards, under 22 & 23 Vict. c. 66. passed in 1859, and the local inspection of gas meters, although such duties are not intrusted to the same local officers who are charged with the inspection of imperial weights and measures. For the execution of these duties special Inspectors are to be appointed by the local magistrates. There is, however, no similar compulsory legal provision for the periodical comparison and re-verification of these local gas measuring standards.

"Handy Book of Weights and Measures," illustrating the working of these Acts.

A number of cases showing the practical working of these Weights and Measures Acts, and legal opinions upon their construction, are recited in a small book compiled by Messrs. Nicholl and Fowler, scale, weight, and measure makers, and published in 1860. It is called "A Handy Book of Weights and Measures," and contains much useful information upon the subject.

Further cases brought under the notice of this Department.

Some further cases which have been brought under the notice of this Department, and have been the subjects of correspondence, are appended to this paper.* In this correspondence will be found some complaints of the operation of these laws, as well as of their insufficiency. The replies from this Department are also given, in order to show the mode in which such cases have been hitherto officially dealt with.

Answers by Inspectors to certain questions from this Department.

There will also be found appended* some evidence respecting the execution of their duties by Inspectors, in replies to certain questions sent to them by Mr. Chaney under my directions, and which will be found to deserve attention.

Reference to points requiring attention.

Reference may be here made to some of the points involved in these cases, to which it appears requisite that attention should be drawn.

1. The doubtful construction of sections 21 and 29 of 5 & 6 Will. 4. c. 63. as to the duty of an Inspector to

* These cases will now be found stated in Appendix VI. to this Report, p. 255.

Appendix I.—*continued.*

stamp weights and measures, being multiples or parts of standard units, other than those represented by local standards. For example, a 3½ lb. weight, a 5-gallon measure, &c. (See Appendix VI., No. 11, and Handy Book of Weights and Measures, pp. 81–88.)

2. The unsatisfactory construction frequently put upon section 3 of 5 & 6 Will. 4. c. 63. which abolished all local and customary measures, and allows only the sale of any article in any vessel which does not represent any amount of measure. (See Appendix VI., Nos. 2 and 3; Handy Book, pp. 24–27, 64, 65, 107.) The repeal of this proviso was recommended by the Select Committee of Weights and Measures, 1862.

3. The insufficient provision of the law which enables an Inspector to seize false or defective weights and measures, although it gives him no authority to act, where he sees that any fraud is committed in selling with correct weights and measures, or balances, nor affords summary redress to a defrauded purchaser of goods falsely weighed or measured, (Handy Book, p. 75), except in the case of bread.

Convictions under weights and measures laws.

With respect to the number and description of convictions under the weights and measures laws, the following Returns have been made to Parliament, and printed:—

No. 153 of 1861.

There has been but one Return of the number of convictions in Great Britain, viz., for the quarter ending 24th June 1860. This Return shows each conviction in detail, in each county in England and Wales, and in each county and burgh in Scotland; the extent and nature of each inaccuracy; together with the amount of the penalty and costs imposed; by whom the informations were laid, and to whom the penalties and costs were paid.

No. 15 of 1859. No. 94 of 1863. No. 11 of 1864. No. 56 of 1865.

Similar Returns have been made of convictions within the police district of the Metropolis, for the following years:—

For the years ending 31st December 1857; 25th March 1862; 25th March 1863, and 25th March 1864.

See (G.)

A tabular abstract of these four Returns will be found appended.

The subject of convictions under the laws relating to weights and measures is one of much importance, not only as regards the interests of the public, but as affecting a large number of persons employed in trade, and many petitions have lately been presented to Parliament praying for an inquiry into the whole matter, and for an alteration of the law under which such convictions take place and penalties are imposed. The question is understood to be now under the consideration of the Home Department. It would appear that more precise information is required than has yet been furnished, as to the mode of administering the law by the local authorities, and of the execution of the duties of the local Inspectors, leading to such convictions; and that this information may be obtained and furnished through the Standards Department and the Standards Commission.

Question of furnishing authoritative instructions to local Inspectors.

It will be for the Standards Commission to consider and report how far it may be expedient to recommend that the necessary powers and authority be conferred upon the Board of Trade or their officer of the Standards Department, and that authoritative instructions be issued to the several Inspectors of Weights and Measures throughout the Kingdom, with the view of securing uniformity of action in the execution of their duties, and due compliance with the laws as they may be construed by the highest legal authorities.

Suggestion of fuller and more precise information to Commission by evidence of local Inspectors and others;

It may, however, perhaps be thought desirable, that fuller and more precise information as to the mode of execution of their duties may be afforded by the evidence before the Commission of some of these Inspectors themselves, a selection being made both of the Inspectors of large and populous places, who give their whole time and attention to weights and measures, as well as of those *ex-officio* Inspectors who are also Inspectors of Police, and have other public duties to perform. The evidence of other persons may also be desirable, who have directed their attention to the subject.

And of returns to the Department from every Inspector.

In the meantime it may be useful to collect as soon as possible, certain heads of information from each of the local Inspectors, or persons in charge of the local standards, as to their transactions during the year 1866. For this purpose it is suggested that the Warden of the Standards should be instructed by the Commission to transmit to the local authorities a circular printed form to be filled up by the Inspectors, with the further view of similar information being furnished by this Department at the end of each subsequent year, in order that it may be condensed and shown in an abstract form in the Annual Report by the Warden of the Standards to the Board of Trade and to Parliament.

Some valuable information as to the nature and form of the Returns, which may thus be made by the several local Inspectors and other persons, is to be found in a series of annual Reports, commencing with the year 1845, which have been made to the Local Magistrates by Mr. Mellor, the Chief Inspector of Weights and Measures for the city of Manchester. Copies of these Reports, which are in a convenient printed form, have been furnished to this Department by Mr. Mellor.

Proposed form of such returns.

It may be suggested that four separate returns may thus be made by each of the local Inspectors, or other persons in charge of the local standards, according to the forms appended, viz.:—

See (H.)

1. Return of the number of copies of standards of weights and measures in use throughout the United Kingdom during the year ended 31st December 1866; the date when last verified at the Exchequer or Board of Trade, or, in the case of any county containing more than one district or other division for the inspection of weights and measures, when last locally re-verified; (this Return should also show the number and description of all sub-standards in use in Ireland, and whenl ast locally verified or reverified);

2. Of the number and description of weights and measures compared and stamped during the year;

3. Of the number of weights, measures, and balances, or other weighing machines, examined in shops and other places, showing the number found correct, requiring adjustment, and seized, together with the number of convictions;

4. Of the total number and amount of penalties, and the amount of costs; showing to whom paid;

5. Of the total amount of the receipts in respect of weights and measures applicable to the costs of inspection; distinguishing the proportion of penalties applicable to the payment of the total expenditure of the local inspection, &c.; of the produce of weights, &c. seized; of fees for stamping, and of fees for adjusting; together with the total expenditure for salaries and expenses, distinguishing the amount of the salary and emoluments of the Inspector.

A schedule to be appended to these Returns, showing in detail the number of convictions, &c., as specified in the Return to the House of Commons, No. 153, of 1861, together with a statement of any special circumstances in reference to weights and measures brought under the notice of the Inspector in the locality which may appear to deserve attention; particularly whether any or what local, customary, or other weights and measures other than the several denominations of the official standards are in general use in the district, and whether such local, customary, or other weights and measures have been officially stamped.

(Signed) H. W. Chisholm,
Standard Department, Warden.
January 11, 1867.

(A.) *See* p. 3.

Regulation respecting Requisitions of Local Authorities for Verification of Standards; and Form of Requisition.

Exchequer Minute, June 10, 1864.

The Comptroller-General has referred to the following Acts "5 & 6 Will. 4. c. 63.; 22 & 23 Vict. c. 56.; and 23 & 24 "Vict. c. 119.;" under which copies of the Imperial standards of weight and measure are to be provided by order of the magistrates and other local authorities for use within their respective jurisdictions, and to be verified and stamped at the Exchequer. He is informed that it has generally been the practice to verify and stamp such copies upon the requisition of the manufacturer in London, by whom such copies are brought to the Exchequer, without the production of any authority from the magistrates or municipal or other authorities, as specified in the above-recited Acts.

He now directs that a more strict compliance with the provisions of the Acts be observed in the Weights and Measures Department, and that in every instance, before any such copies of the Imperial standards are verified at the Exchequer, the necessary authority from the magistrates or other local officers for whom such copies are provided and required to be verified and stamped at the Exchequer, be produced and recorded in the books of the Department.

(Signed) Monteagle, Comptroller-General.

Consequent Circular to Standard Weights and Measures Makers.

Gentlemen, Exchequer, 6, Old Palace Yard, June 1864.

I am instructed by the Comptroller-General to inform you that his minute of 10th June 1864, directs that in every instance of copies of the Imperial standard weights and measures being required to be verified or re-verified and stamped at the Exchequer, the necessary requisition from the magistrates or other local authorities by whose order such copies are provided under the

Appendix I.—*continued.*

provisions of "5 & 6 Will. 4. c. 63. s. 17." and subsequent Acts, be produced and recorded at the Exchequer.

I am also instructed to inform you that the necessary authority from the magistrates or other local officers, may be expressed by them, either by words to that effect upon the usual requisition furnished to the Weights and Measures Department, or by a letter addressed to the Comptroller-General, constituting you their agents, and specifying the standards requiring verification or re-verification, together with the place or district for the use of which they are provided.

I am, Gentlemen,
Your obedient Servant,
H. W. Chisholm, Chief Clerk.

To

Form of Requisition now used.

Sir, 18

I have to request that you will receive from of the following standard weights and measures, viz.:—

To be verified and stamped pursuant to the several Acts for regulating weights and measures, for the use of

I have the honour to be,
Sir,
Your obedient servant,
Signature of Magistrate, Town Clerk, or Clerk of the Peace.

The Warden of the Standards,
Board of Trade, Westminster.

(B.) *See* p. 4.

Exchequer Minute, July 28, 1864.

All Local Standards, when Verified, to be Numbered and Recorded in a Register of Verification.

The Assistant-Comptroller's attention has been directed to the want of identification of the local standards of Imperial weights and measures compared and verified at the Exchequer under the system hitherto established in the Weights and Measures Department.

Under this system, upon every occasion when such local standards are verified, they are stamped to denote such verification, the particulars of the several standards, the date of verification, and the place for which they are required, being certified in the indenture which is made out for every such verification.

Such indentures are numbered consecutively, and are registered in the Weights and Measures Department. But there are at present no means of identifying the actual local standards described in such indenture. For although there is a customary regulation at the Exchequer that every local standard shall be duly marked with the name of the place for which it is required, yet this does not afford the means of distinguishing standards of the same denomination required for the same place.

The Assistant-Comptroller refers to the recommendation of the Astronomer Royal, the chairman of the Standards Committee, in his letter to Comptroller-General of February 1, 1859. "To give "identity to every standard of whatever kind which has been in "the Exchequer Office since 1824, by assigning to it a progressive "numero and a corresponding opening in a ledger in which its "whole history may be recorded, and by impressing that numero "upon the material standard whenever it should again appear in "the Office."

He refers also to the mode in which this recommendation which applies to copies of the standards of Imperial weights and measures is already carried out so far as respects copies of the gas measuring standards.

The Assistant-Comptroller directs accordingly, that as soon as the necessary stamps can be provided, every local standard weight and measure when verified at the Exchequer, shall at once be stamped with the number of its indenture, if not previously so stamped.

He directs also that a book to be called the "verification book" shall be kept in the Weights and Measures Department in the form annexed, which has been prepared by Mr. Chaney, and in which the numbers impressed upon the several standards shall be entered. The verification book will thus be an additional record of the several transactions of this Department affecting the local standards.

(Signed) Geo. Frederick,
Assistant-Comptroller.

Form of Register of Verifications.

Verification of Weights and Measures.

Number.	Dates of Indenture and Original Issue.	Destination.	Maker's Name.	When Received.	When Returned.	When last Verified.	Weights.				Measures.				Whether any *Local* Comparison has taken place under sec. 1, 22 & 23 Vict. c. 56.	Address of Local Officer in communication with the Exchequer.	Remarks.
							Avoirdupois.	Errors.	Troy.	Errors.	Capacity.	Errors.	Length.	Errors.			

(C.) *See* p. 4.

List of Places for which Copies of the Imperial Standards have been officially verified, up to the 29th of October 1866, together with the number of Sets verified for each place, the Designation of the Custodian, the Date of the last Official Verification or Re-verification, and the estimated Number of Inspectors employed, so far as can be ascertained from the Records of the Standards Department.

Note.—Counties include Hundreds, Districts, and other Divisions of Counties. A *Complete* Set of Standards includes Avoirdupois and Troy weights, together with measures of Length and Capacity; a *Full* Set includes Avoirdupois weights and measures only; a *Short* Set includes either a set of Avoirdupois, or of Troy weights, or of measures. In two cases only have a single standard weight and a single measure been verified at the Exchequer, viz., for the Government of Brazil and for the Government of Victoria, for each 1 lb. Avoirdupois and 1 Standard Yard, being copies of the Imperial Standards of weight and of length. The letter P in the last column signifies Inspectors of Police, who are *ex-officio* Inspectors of Weights and Measures.

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
ENGLAND.									
Beds	- - -	- - -	—	2	2	The County -	Chief Constable -	1865	8 P.
	Bedford	- - -	—	1	—	Corporation -	Town Clerk -	1859	1
		Luton -	—	1	—	Lord of the Manor	Steward of Manor	1837	—
		Woburn -	—	—	1	The Township -	Gatekeeper -	1851	1
Berks	- - -	- - -	2	9	—	County -	Chief Constable -	1864	4 P.
	Abingdon -	- - -	—	1	—	Borough -	Mayor -	1861	1
	Maidenhead	- - -	—	1	—	Town - -	Inspector -	1860	1
	Newbury -	- - -	—	1	—	Borough -	Town Serjeant -	1860	1
	Reading -	- - -	—	1	—	Do. - -	Town Clerk -	1860	1
	Wallingford	- - -	—	1	—	Do. - -	Inspector -	1834	1
	Windsor -	- - -	—	1	—	Corporation -	Town Clerk -	1864	1
	Wokingham	- - -	—	1	—	Town - -	Inspector -	1835	1
		Farringdon -	—	1	—	Lord of Manor -	W. Bennett, Esq. -	1827	1

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
Bucks	- - - -	- - -	—	1	14	County - -	Clerk of the Peace	1861	4 P.
	Buckingham -	- - -	1	—	—	Borough - -	Clerk to Justices -	1862	1
	Wycombe - -	- - -	—	1	—	Do. - - -	Town Clerk -	1862	1
		Winslow -	—	—	1	Lord of Manor -	W. Lowndes, Esq.	1847	1
Cambridge -	- - - -	- - -	1	10	—	County - -	Clerk of Peace -	1864	6 P.
	Wisbech - -	- - -	—	1	—	Corporation - -	Town Clerk -	1862	1
		Cambridge -	—	1	—	University - -	Taxors - -	1840	1
Cheshire - -	- - - -	- - -	—	5	30	County - -	Clerk of Peace -	1862	4 P.
	Birkenhead -	- - -	—	1	—	Town - - -	Commissioners -	1864	2
	Chester - -	- - -	1	—	—	City - - -	Town Clerk -	1866	1
	Congleton - -	- - -	—	1	—	Borough - -	Chief Constable -	1863	1
	Macclesfield -	- - -	—	1	1	Do. - - -	Town Clerk -	1859	1
		Stockport -	—	—	2	Lord of Manor -	Steward of Manor	1863	1
Cornwall - -	- - - -	- - -	1	4	3	County - -	Chief Constable -	1863	5 P.
	Bodmin - -	- - -	—	1	—	Borough - -	Town Clerk -	1863	1
	Falmouth - -	- - -	—	—	1	Do. - - -	Inspector - -	1860	1
	Helston - -	- - -	—	1	—	Do. - - -	Mayor - -	1826	1
	Launceston -	- - -	—	1	—	Do. - - -	Inspector - -	1850	1
	Liskeard - -	- - -	—	—	1	Corporation -	Town Clerk -	1860	1
	Penryn - -	- - -	—	—	1	Do. - - -	Do. - - -	1835	1
	Penzance - -	- - -	—	1	—	Borough - -	Mayor - -	1826	1
	St. Germans -	- - -	—	—	1	Do. - - -	Clerk of Market -	1830	—
	St. Ives - -	- - -	—	—	1	Do. - - -	Mayor - -	1831	1
	Truro - -	- - -	—	1	—	Do. - - -	Town Clerk -	1826	1
		The Duchy and Stannaries.	—	—	2	The Duchy of Cornwall.	The Receiver-General.	1834	—
Cumberland -	- - - -	- - -	—	5	—	County - -	Chief Constable -	1865	3 P.
	Carlisle - -	- - -	—	2	—	City - - -	Treasurer of City	1865	1
	Workington -	- - -	—	1	—	Town - - -	Clerk to the Trustees.	1854	1
Derby - -	- - - -	- - -	—	13	8	County - -	Chief Constable -	1864	6 P.
	Chesterfield -	- - -	—	1	—	Borough - -	Constable (Head)	1858	1 P.
	Derby - -	- - -	—	2	—	Do. - - -	Chamberlain -	1865	1
		Glossop - -	—	1	—	The Market -	Duke of Norfolk -	1845	1
Devon - -	- - - -	- - -	—	9	14	County - -	Clerk of the Peace	1864	9 P.
	Barnstaple -	- - -	—	—	1	Borough - -	Mayor - -	1860	1
	Bideford - -	- - -	—	1	—	Do. - - -	Inspector - -	1860	1
	Bradninch - -	- - -	—	—	1	Do. - - -	Do. - - -	1863	1
	Dartmouth -	- - -	—	1	—	Do. - - -	Town Clerk -	1866	1
	Exeter - -	- - -	—	1	—	City and County of	Do. - - -	1861	1
	Exmouth - -	- - -	—	—	1	Town and Market	Inspector - -	1838	1
	Great Torrington	- - -	—	1	—	Town - - -	Mayor - -	1862	1
	Holsworthy -	- - -	—	—	1	Do. - - -	Portreeve - -	1836	—
	Honiton - -	- - -	—	2	—	Do. - - -	Inspector - -	1859	1
	Ilfracombe -	- - -	—	1	1	Local Board of Health.	Local Board -	1863	1
	Molton, South -	- - -	—	1	—	Liberty of - -	Town Clerk -	1862	1
	Okehampton -	- - -	—	1	1	Borough - -	Do. - - -	1835	1
	Plymouth - -	- - -	—	1	—	Do. - - -	Mayor - -	1860	1
	Stoke Damerel -	- - -	—	—	1	Parish of - -	Town Clerk -	1866	1
	Stonehouse, East	- - -	—	—	1	Township - -	Governor of Workhouse.	1833	1
	Tiverton - -	- - -	—	—	1	Borough - -	Inspector - -	1858	1
	Totnes - -	- - -	—	1	—	Do. - - -	Mayor - -	1860	1
		St. Sidwell -	—	—	1	Lord of Manor -	Steward of Manor	1860	1
		Tavistock -	—	1	—	Do. - - -	Duke of Bedford -	1826	1
Dorset - -	- - - -	- - -	—	6	5	County - -	Chief Constable -	1864	5 P.
	Bridport - -	- - -	—	1	—	Borough - -	Inspector - -	1835	1 P.
	Dorchester -	- - -	—	1	—	Do. - - -	Do. - - -	1835	1
	Lyme Regis -	- - -	—	1	—	Do. - - -	Do. - - -	1864	1
	Poole - -	- - -	—	1	—	Town and County of.	Mayor - -	1826	1
	Weymouth -	- - -	—	1	—	Corporation - -	Town Clerk -	1844	1
		Gillingham -	—	1	—	Liberty and Manor	Bailiff - - -	1826	1
Durham - -	- - - -	- - -	—	15	—	County - -	Chief Constable -	1866	4 P.
	Gateshead - -	- - -	—	1	—	Borough - -	Mayor - -	1846	1
	Stockton - -	- - -	—	2	—	Do. - - -	Town Clerk -	1866	1
	South Shields -	- - -	—	1	—	Do. - - -	Do. - - -	1864	1
	Sunderland -	- - -	—	1	—	Do. - - -	Do. - - -	1866	1
Essex - -	- - - -	- - -	—	15	—	County - -	Clerk of Peace -	1864	4 P.
	Colchester - -	- - -	—	1	—	Borough - -	Inspector - -	1865	1
	Maldon - -	- - -	—	1	—	Do. - - -	Do. - - -	1861	1
	Harwich - -	- - -	—	1	—	Do. - - -	Town Clerk -	1863	1
	Havering - -	- - -	1	—	—	Liberty of - -	High Steward -	1835	1
	Saffron Walden -	- - -	—	1	—	Borough - -	Town Clerk -	1859	1
		Wetherfield -	—	—	1	Lord of Manor -	J. Weatherfield, Esq.	1828	—

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
GLOUCESTER	- - - - -	- - -	—	8	2	County - -	Clerk of Peace -	1860	5 P.
	Cheltenham	- - -	—	1	—	Town Police -	High Constable -	1826	1 P.
	Cirencester	- - -	—	—	1	Town and Borough	Steward - -	1834	1
	Gloucester	- - -	—	1	—	City - - -	Chief Constable -	1860	1 P.
	Tewkesbury	- - -	—	2	—	Borough - -	Town Clerk -	1860	1
	Wotton-under-Edge.	- - -	—	—	1	Town - - -	Mayor - -	1829	1
		Bisley - -	—	—	1	Lady of the Manor	Eliz. Ackerley -	1836	1
		Churchdown -	1	—	—	Do. - - -	Do. - - -	1836	—
		Cirencester, 7 hundreds of.	—	—	1	Do. - - -	Do. - - -	1836	—
		Hempstede -	—	—	1	Do. - - -	Do. - - -	1837	—
		Presbury and Deerhurst.	—	—	1	Do. - - -	Do. - - -	1836	—
		Stow-in-the-Wold.	2	—	1	Do. - - -	Do. - - -	1837	—
		Swell *alias* Nether Swell.	—	—	1	Do. - - -	Do. - - -	1836	—
HANTS - -	- - - - -	- - -	—	1	13	County - -	Chief Constable -	1859	5 P.
	Andover - -	- - -	—	1	—	Borough - -	Superintendent of Police.	1860	1 P.
	Basingstoke -	- - -	—	—	2	Town - -	Do. - - -	1860	1 P.
	Newport, I. of W.	- - -	—	1	—	Borough - -	Town Clerk -	1840	1
	Portsmouth -	- - -	—	1	2	Do. - - -	Clerk of Peace -	1866	1
	Ryde, I. of W. -	- - -	—	1	—	Town - - -	Clerk to Commissioners.	1831	1
	Southampton -	- - -	—	1	9	County of - -	Town Clerk -	1866	2
	Winchester -	- - -	—	1	2	City - - -	Do. - - -	1866	1
		Stockbridge -	—	—	1	Lord of Manor -	J. Burnham, Esq.	1826	1
HEREFORD - -	- - - - -	- - -	—	3	1	County - -	Clerk of Peace -	1863	3 P.
	Hereford - -	- - -	—	1	—	City - - -	Swordbearer -	1835	1
	Leominster -	- - -	—	1	—	Borough - -	Chamberlain -	1847	1
HERTS - -	- - -	- - -	—	6	—	County - -	Chief Constable -	1865	4 P.
	Bishop's Stortford	- - -	—	1	—	Town - - -	Inspector - -	1836	1
	Hemel Hempstead	- - -	—	—	1	Do. - - -	Bailiff - - -	1826	1
	Hertford - -	- - -	—	2	—	Do. - - -	Chief Constable of Hertfordshire.	1865	—
	Hitchin - -	- - -	—	—	1	Do. - - -	Sheriff's Officer -	1826	1
	St. Albans - -	- - -	—	2	—	Borough - -	Inspector - -	1863	1
		Cheshunt -	—	—	1	Lord of Manor -	Bailiff - - -	1856	1
HUNTS - -	- - - - -	- - -	—	1	2	County - -	Clerk of Peace -	1866	2 P.
	Huntingdon -	- - -	—	1	—	Borough - -	Chief Constable for the County.	1833	—
KENT - - -	- - - - -	- - -	—	15	3	County - -	Clerk of Peace -	1866	6
	Bexley - -	- - -	—	—	1	Parish - -	Churchwardens -	1830	1
	Canterbury -	- - -	—	1	—	City and Borough	Mayor - -	1860	1
	Chatham - -	- - -	—	1	—	Parish - -	High Constable -	1826	1 P.
	Dartford - -	- - -	—	—	1	Do. - - -	Churchwardens -	1833	1
	Deal - - -	- - -	—	—	1	Town - - -	Town Clerk -	1826	1
	Dover - - -	- - -	3	1	1	Corporation -	Do. - - -	1860	1
	Faversham -	- - -	—	1	—	Do. - - -	Do. - - -	1866	1
	Folkestone -	- - -	—	1	—	Do. - - -	Mayor - -	1859	1
	Gravesend - -	- - -	—	1	1	Do. - - -	Do. - - -	1864	1
	Hythe - -	- - -	—	1	1	Do. - - -	Do. - - -	1861	1
	Lydd - -	- - -	—	—	1	Do. - - -	Chamberlain -	1826	1
	Maidstone - -	- - -	—	1	—	Do. - - -	Mayor - -	1861	1
	Milton (see Gravesend).								
	Queenboro' -	- - -	—	2	—	Do. - - -	Clerk of Peace -	1835	1
	Ramsgate - -	- - -	—	2	—	Town - - -	Inspector - -	1835	1
	Rochester - -	- - -	—	1	—	City - - -	Mayor - -	1865	1
	Romney - -	- - -	—	2	—	New and East Romney.	Corporation -	1826	1
	Sandwich - -	- - -	—	1	1	Town and Port -	Mayor - -	1835	1
	Sheppey - -	- - -	2	—	—	Parish of Minster -	Churchwardens -	1855	1
	Tenterden - -	- - -	—	1	—	Corporation - -	Chamberlain -	1865	1
	Woolwich - -	- - -	—	—	1	Parish of St. Mary	Commissioners -	1863	1
		Brasted - -	—	—	1	The Manor - -	Steward - -	1826	1
		Lewisham -	—	—	1	Do. - - -	Do. - - -	1858	1
		Swanscombe -	—	—	1	Earl of Jersey -	Constable of Greenhithe.	1827	1 P.
LANCASTER - -	- - - - -	- - -	—	29	10	County - -	Treasurer of County.	1865	14 P
	Ashton-under-Lyne.	- - -	—	1	—	Borough - -	Town Clerk -	1862	1
	Accrington -	- - -	—	1	—	Township - -	Chapel wards -	1828	1
	Blackburn - -	- - -	—	2	—	Corporation -	Town Clerk -	1864	1
	Bolton - -	- - -	—	2	—	Borough - -	Do. - - -	1865	1
	Clitheroe - -	- - -	—	1	—	Do. - - -	Bailiffs - -	1835	1

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verefied. Complete Sets.	Full Sets.	Short Sets.	Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody Delivered.	Date of last Official Verification or Reverification.	Probable number of Inspectors employed.
LANCASTER—*cont.*	Lancaster	—	—	1	—	Corporation	Bailiffs	1827	1
	Liverpool	—	5	2	7	Do.	Town Clerk	1866	3
	Manchester	—	1	2	3	City and Borough	Do.	1866	3
	Oldham	—	—	1	2	Borough	Do.	1865	1
	Preston	—	—	1	—	Corporation	Do.	1865	1
	Salford	—	1	—	1	Borough	Do.	1864	1
	Staleybridge	—	—	1	—	Do.	Do.	1863	1
	Warrington	—	—	1	—	Do.	Do.	1854	1
	Wigan	—	—	1	—	Do.	Inspector	1835	1
		Bury	—	1	—	Town and Market	Agent to Earl Derby, Lord of Manor.	1866	1
		Manchester	—	1	—	Lord of Manor	Sir O. Moseley	1825	—
		Rochdale	—	1	—	Do.	J. Dearden, Esq.	1826	1
LEICESTER	—	—	—	8	—	County	Chief Constable	1866	3 P.
	Leicester	—	—	1	—	Borough	Town Clerk	1865	1
LINCOLN	—	—	—	11	2	County	Chief Constable	1865	4 P.
	Boston	—	1	—	—	Borough	Mayor	1850	1
	Frampton	—	—	1	—	Parish	High Constable	1849	1
	Grantham	—	—	1	—	Borough	Town Clerk	1856	1
	Great Grimsby	—	—	1	—	Do.	Do.	1846	1
	Lincoln	—	—	2	—	City, County of, and Bail of.	Clerk of Peace (County).	1859	1 P.
							Head Constable (Bail).	1866	—
	Louth	—	—	1	—	Corporation	Chief Constable	1865	1 P.
	Spalding	—	—	—	1	Town	Inspector	1864	1
	Stamford	—	—	1	—	Borough	Town Clerk	1866	1
		Alford	—	—	1	Lord of Manor	R. A. Christopher, Esq.	1850	1
		Belton	—	1	—	Earl Brownlow	Earl Brownlow	1826	—
MIDDLESEX	—	—	13	3	1	County	Clerk to Middlesex Justices.	1865	4
	Chelsea	—	—	—	2	Parish of St. Luke's	Churchwardens	1839	1
	Islington	—	—	—	1	Parish of St. Mary	Senior Churchwardens.	1862	1
	Kensington	—	—	—	1	St. Mary Abbotts	Churchwardens	1860	1
	London	—	—	7	4	City	Town Clerk and Keeper of Guildhall.	1865	3
								1865	—
	Paddington	—	—	2	—	Parish of St. Mary	Churchwardens	1861	1
	The Rolls	—	—	—	1	The Liberty	Foreman of the Inquest.	1828	—
	St. Marylebone	—	—	2	—	Parish and Borough	Inspector	1845	1
	St. Pancras	—	—	1	1	Parish	Master of Workhouse.	1865	1
	Tower	—	—	1	—	The Liberty	Chief Bailiff	1863	1
	Westminster	—	—	3	—	City	Dep. High Steward	1863	2
		Heston	—	1	—	The Manor of	Bailiff to Duke of Northumberland.	1853	1
		Isleworth	—	1	—	Do.			
		St. John of Jerusalem.	—	—	1	The Manor	The Bailiff	1841	—
		Savoy	—	—	1	Duchy of Lancaster	Steward of Manor and Liberty of the Savoy.	1825	—
		Twickenham	—	1	—	The Manor	Bailiff to Duke of Northumberland (see Heston).	1853	—
MONMOUTH	—	—	—	1	1	County	Clerk of Peace	1862	2 P.
	Monmouth	—	—	—	1	Borough	Inspector	1862	1
	Newport	—	—	1	—	Do.	Town Clerk	1835	1
NORFOLK	—	—	—	11	2	County	Chief Constable	1862	6 P.
	Buckenham, New	—	—	1	—	Town	Bailiff	1826	1
	Diss	—	1	1	—	Do.	Constable	1835	1 P.
	King's Lynn, or Lynn Regis	—	—	1	1	Borough	Town Clerk	1865	1
	Norwich	—	1	1	—	City	Clerk of the Peace	1862	1
	Thetford	—	—	1	—	Borough	Mayor	1851	1
	Walsham, North	—	—	1	—	Parish	Overseer	1854	1
	Yarmouth	—	—	1	—	Borough	Chamberlain	1861	1
NORTHAMPTON	—	—	—	8	—	County	Clerk of Peace	1864	4 P.
	Daventry	—	—	1	—	Borough	Bailiff	1826	1
	Higham Ferrars	—	—	1	—	Do.	Constable	1864	1 P.
	Northampton	—	—	1	1	Corporation	Chief Constable	1865	1 P.
	Peterborough	—	—	1	—	Soke and City of	Do.	1866	1 P.

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
Northumberland	- - - -	- - -	6	1	—	County - -	Clerk of the Peace	1866	4 P.
	Berwick - -	- - -	—	1	—	Corporation -	Town Clerk -	1826	1
	Newcastle - -	- - -	1	—	—	Town - - -	Do. - -	1865	1
	Tynemouth -	- - -	—	1	1	Borough - -	Do. - -	1862	1
		Alnwick -	—	—	1	Bailiff to the Duke of Northumberland and Sir W. Riddell, Steward of the Manors and Baronies		1836	1
		Corbridge and Prudhoe.	—	—	1			1852	
		Hexham -	—	—	1			1840	
		Newburn, Tynemouth, &c.	—	—	1			1852	
		Rothbury -	—	—	1			1836	
		Wackworth and Alnmouth.	—	—	1			1836	
Nottingham -	- - - -	- - -	—	8	3	County - -	Chief Constable -	1866	4 P.
	Newark - -	- - -	—	1	—	Borough - -	Inspector - -	1860	1
	Nottingham -	- - -	—	1	1	Town - - -	Town Clerk -	1863	1
	Retford, East -	- - -	—	1	—	Borough - -	Do. - -	1835	1
Oxon - -	- - - -	- - -	—	5	6	County - -	Clerk of the Peace	1865	3 P.
	Banbury - -	- - -	—	1	—	Borough - -	Mayor - -	1845	1
	Chipping Norton	- - -	—	1	—	Do. - -	Magistrate - -	1863	1
		Oxford - -	—	1	—	The University -	Clerks of the Market.	1858	1
Rutland - -	- - - -	- - -	—	2	—	County - -	Chief Constable -	1863	1 P.
Salop -	- - - -	- - -	1	1	—	Do. - -	Clerk of Peace -	1862	5 P.
	Bridgenorth -	- - -	1	—	—	Borough - -	Town Clerk -	1866	1
	Ludlow - -	- - -	—	1	—	Town - - -	Mayor - -	1862	1
	Oswestry - -	- - -	—	2	—	Borough - -	Inspector - -	1866	1
	Shrewsbury -	- - -	—	1	—	Do. - -	Chief Constable -	1865	1 P.
	Wenlock - -	- - -	—	1	—	Do. - -	Town Clerk -	1865	1
Somerset - -	- - - -	- - -	—	8	5	County - -	Clerk of Peace -	1864	5 P.
	Axbridge - -	- - -	—	1	—	Borough - -	Town Clerk -	1825	1
	Bath - - -	- - -	1	—	—	City - - -	Do. - -	1864	1
	Bridgewater -	- - -	—	1	—	Borough - -	Inspector - -	1861	1
	Bristol - -	- - -	1	—	1	City, County -	Swordbearer -	1864	1
	Glastonbury -	- - -	—	1	—	Borough - -	Mayor - -	1843	1
	Wells - -	- - -	—	1	—	Do. - -	Do. - -	1835	1
	Yeovil - -	- - -	1	—	—	Do. - -	Superintendent of Police.	1859	1 P.
		Watchet and Williton.	—	1	—	Lord of Manor -	Earl of Egremont	1856	1
		Wiveliscombe	—	—	1	Court Leet - -	Portreeve of Court Leet.	1861	1
Stafford - -	- - - -	- - -	—	5	—	County - -	Chief Constable -	1864	3 P.
	Bilston - -	- - -	—	—	1	The Market -	Inspector - -	1849	1
	Burslem - -	- - -	—	1	—	Town - - -	Chief Constable -	1826	1 P.
	Hanley - -	- - -	—	—	1	The Market -	Inspector - -	1847	1
	Lichfield - -	- - -	—	1	—	City - - -	Town Clerk -	1860	1
	Newcastle-under-Lyne.	- - -	—	1	—	Corporation -	Do. - -	1850	1
	Stafford - -	- - -	—	—	2	Borough - -	Do. - -	1865	1
	Tamworth - -	- - -	—	1	—	Do. - -	Do. - -	1826	1
	Tutbury - -	- - -	—	—	1	Town - - -	Not recorded -	1836	—
	Walsall - -	- - -	—	1	1	Borough - -	Clerk of Peace -	1865	1
	Wolverhampton -	- - -	—	1	—	Corporation -	Town Clerk -	1863	1
Suffolk - -	- - - -	- - -	—	24	3	County - -	Clerk of Peace -	1865	6 P.
	Aldeburgh -	- - -	—	1	—	Burgh - -	Town Clerk -	1862	1
	Bury St. Edmund's	- - -	—	2	—	Borough - -	Do. - -	1860	1
	Eye - - -	- - -	—	—	1	Town - - -	Clerk of Market -	1836	1
	Halesworth -	- - -	—	1	1	Do. - - -	Do. - -	1826	1
	Ipswich - -	- - -	—	1	—	Corporation -	Inspector - -	1860	1
	Orford - -	- - -	—	1	—	Borough - -	Town Clerk -	1825	1
	Southwold -	- - -	—	1	1	Corporation -	High Steward -	1853	1
	Stowmarket -	- - -	—	2	—	Town - - -	Chief Constable -	1856	1 P.
	Sudbury - -	- - -	—	1	—	Borough - -	Inspector - -	1860	1
Surrey - -	- - - -	- - -	1	12	—	County - -	Clerk of Peace -	1865	4
	Battersea - -	- - -	—	—	1	Parish - -	Churchwardens -	1826	—
	Camberwell -	- - -	—	1	1	Parish of St. Giles	Master of the Workhouse.	1826	—
	Clapham - -	- - -	—	—	1	Parish - -	Churchwardens -	1826	—
	Godalming -	- - -	—	—	1	Town and Parish -	Warden - -	1826	1
	Guildford - -	- - -	—	—	1	Borough - -	Mayor - -	1856	1
	Kingston - -	- - -	—	1	—	Corporation -	Bailiffs - -	1826	1
	Mitcham - -	- - -	—	—	1	Parish - -	Churchwardens -	1827	—
	Southwark -	- - -	—	—	2	Borough - -	High Bailiff - -	1865	2
	Streatham - -	- - -	—	—	1	Parish - -	Churchwardens -	1828	—
		Croydon -	—	—	1	The Manor - -	Bailiff - - -	1829	—
		Old Paris Garden.	—	—	1	Not recorded -	- - - -	1826	—
		Southwark -	—	—	1	Lord of Manor -	C. Pott, Esq. -	1826	—

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
Sussex	- - - - -	- - -	2	3	5	County - -	Clerk of Peace -	1866	4 P.
	Arundel - -	- - -	—	—	1	Borough - -	Mayor - -	1862	1
	Battle - -	- - -	—	1	—	Town - - -	Inspector - -	1862	1
	BrightonorBright-helmstone.	- - -	1	1	1	Do. - - -	Mayor - -	1864	2
	Chichester - -	- - -	—	2	1	City - - -	Town Clerk -	1866	1
	Grinstead, East -	- - -	—	1	—	East Grinstead -	Inspector - -	1856	1
	Hastings - -	- - -	—	1	—	Town - - -	Do. - -	1862	1
	Pevensey - -	- - -	—	1	—	Do. - - -	Do. - -	1862	1
	Rye - - -	- - -	—	1	—	Corporation -	Mayor - -	1826	1
	Winchelsea - -	- - -	—	1	—	Do. - -	Serjeant at Mace -	1861	1
	Worthing - -	- - -	—	2	—	Town - - -	Clerk to Commissioners.	1852	1
Warwick - -	- - - - -	- - -	—	5	—	County - -	Clerk of Peace -	1863	3 P.
	Birmingham -	- - -	—	1	5	Borough - -	Town Clerk -	1866	1
	Coventry - -	- - -	—	1	1	City - - -	Chief Constable -	1866	1 P.
	Leamington -	- - -	—	1	—	Local Board of Health.	Clerk to Board -	1864	1
	Stratford-on-Avon	- - -	—	1	—	Borough - -	Clerk of Peace -	1847	1
	Sutton Coldfield	- - -	—	1	—	Corporation -	Deputy Steward -	1826	1
	Warwick - -	- - -	—	1	—	Borough - -	Town Clerk -	1861	1
Worcester -	- - - - -	- - -	—	2	10	County - -	Clerk of Peace -	1865	4 P.
	Bewdley - -	- - -	—	—	1	Borough - -	Town Clerk -	1860	1
	Droitwich - -	- - -	—	1	—	Do. - -	Do. - -	1862	1
	Dudley - -	- - -	1	—	—	Town and Parish -	Clerk of Market -	1827	1
	Evesham - -	- - -	—	1	—	Borough - -	Chief Magistrate -	1835	1
	Kidderminster -	- - -	—	—	1	Do. - -	Chief Constable -	1862	1 P.
	Stourbridge -	- - -	—	1	—	Township - -	Standing Overseer	1826	1
	Worcester - -	- - -	—	1	1	City - - -	Town Clerk -	1862	1
	Wych (see Droitwich).								
		Cutsdam -	—	—	1	Manorial Court Leet.	W. D. Pierce, Esq.	1836	1
		Evesham -	—	—	1	Lady of the Manor	E. Ackerley -	1837	—
Westmorland -	- - - - -	- - -	—	1	—	County - -	Chief Constable -	1863	1 P.
	Kirby in Kendal	- - -	—	1	—	Borough - -	Clerk of Peace -	1863	1
Wilts - -	- - - - -	- - -	1	2	9	County - -	Chief Constable -	1865	3 P.
	Devizes - -	- - -	—	1	—	Borough - -	Mayor - -	1846	1
	Marlborough -	- - -	—	1	—	Do. - -	Inspector - -	1835	1
	Sarum, New -	- - -	—	1	—	Borough and City	Town Clerk -	1866	1
	Swindon - -	- - -	—	—	1	Market - -	Clerk of Market -	1842	—
		Aldborne -	—	—	1	The Manor - -	T. Baskerville, Esq.	1826	—
		Trowbridge -	—	—	1	Town and Liberty	T. Turnbull, Esq., Lord of the Manor.	1826	—
York - -	- - - - -	- - -	—	45	4	County—	Clerks of Peace for—		
						North Riding -	North Riding -	1863	2 P.
						East Riding -	East Riding -	1860	2 P.
						West Riding -	West Riding -	1865	6 P.
	Beverley - -	- - -	—	1	—	Borough - -	Clerk of the Council.	1860	—
	Bradford (see Manor of).								
	Doncaster - -	- - -	—	1	—	Corporation -	Town Clerk -	1866	1
	Hedon - -	- - -	—	1	—	Do. - -	Mayor - -	1826	1
	Kingston-on-Hull	- - -	—	1	—	Do. - -	Swordbearer - -	1826	1
	Leeds - -	- - -	—	3	3	Borough - -	Mayor - -	1861	2
	Middlesboro' -	- - -	1	—	—	Do. - -	Inspector - -	1860	1
	Pontefract - -	- - -	—	1	—	Do. - -	Town Clerk -	1862	1
	Richmond - -	- - -	1	—	—	Corporation -	Mayor - -	1848	1
	Ripon - -	- - -	—	1	—	Borough and Liberty.	Inspector - -	1860	1
	Scarboro' - -	- - -	—	1	1	Corporation -	Town Clerk -	1864	1
	Sheffield - -	- - -	—	2	1	Borough - -	Do. - -	1864	2
	York - -	- - -	—	1	—	City - - -	Do. - -	1825	1
		Bradford -	—	1	—	Ladies of Manor -	M. and E. Rawson*	1860	1
		Burlington -	—	1	—	Manor - -	Lord of the Manor	1859	1
		Eccleshall-Bierlow.	—	—	1	Lord of Manor -	Bailiff - - -	1862	1
		Halifax - -	—	—	1	Do. - -	Steward - -	1865	1
		Honley, Kirkheaton, &c.	—	—	1	Do. - -	Earl of Dartford -	1856	—
		Leeds, Kirkgate, &c.	—	1	—	Do. - -	C. H. Ingram, Esq.	1858	—
		Wakefield -	—	—	1	Do. - -	Steward - -	1865	1
40	235	57	57	549	307	—	—	—	447†

* By the Bradford Corporation Act, 29 & 30 Vict., 16th July 1866, this set is now the property of the Corporation of Bradford.
† Including 188 Police *ex officio* Inspectors, as nearly as can be ascertained.

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
WALES.									
Anglesey	- - - -	- - -	—	2	—	County - -	Clerk of Peace -	1859	1
Brecon	- - - -	- - -	—	1	—	Do. - -	Do. - -	1862	1 P.
	Brecon - -	- - -	—	—	1	Borough - -	Mayor - -	1852	1
Carmarthen	- - - -	- - -	—	2	—	County - -	Clerk of Peace -	1860	1 P.
	Carmarthen -	- - -	—	1	—	County of the Boro'	Town Clerk -	1866	1
	Kidwelly - -	- - -	—	—	1	Town - - -	Do. - -	1860	1
	Llanelly - -	- - -	—	1	—	Parish - -	Magistrates -	1825	—
Cardigan	- - - -	- - -	1	2	—	County - -	Clerk of Peace -	1866	1
Carnarvon	- - - -	- - -	—	6	1	Do. - -	Do. - -	1864	3 P.
	Pwllheli - -	- - -	—	—	1	Corporation -	Town Clerk -	1860	1
Denbigh	- - - -	- - -	—	2	—	County - -	Inspector - -	1865	1 P.
	Denbigh - -	- - -	—	—	1	Borough - -	Town Clerk -	1846	1
Flint	- - - -	- - -	—	2	2	County - -	Inspector - -	1864	2
	Flint - - -	- - -	—	1	—	Borough - -	Treasurer - -	1861	1
Glamorgan	- - - -	- - -	—	5	1	County - -	Clerk of Peace -	1859	2 P.
	Cardiff - -	- - -	—	—	1	Corporation -	Magistrates - -	1826	1
	Merthyr Tydvil -	- - -	—	1	—	Town - - -	Do. - -	1859	1
	Swansea - -	- - -	—	1	—	Corporation -	Town Clerk -	1862	1
Merioneth	- - - -	- - -	—	1	1	County - -	Inspector - -	1865	1 P.
Montgomery	- - - -	- - -	—	1	—	Do. - -	Clerk of Peace -	1863	1 P.
Pembroke	- - - -	- - -	—	1	5	Do. - -	Do. - -	1860	1 P.
	Haverfordwest -	- - -	—	1	—	Town and County of.	Do. - -	1860	1
	Tenby - -	- - -	—	1	—	Borough - -	Town Clerk -	1862	1
Radnor	- - - -	- - -	—	1	—	County - -	Clerk of Peace -	1863	1 P.
	Rhayader - -	- - -	—	—	1	Borough - -	Bailiffs - -	1829	1
12	13	—	1	33	16	—	—	—	28*

* Including 12 Police *ex officio* Inspectors, as nearly as can be ascertained.

SCOTLAND.									
Aberdeen	- - - -	- - -	—	4	—	County - -	Chief Constable -	1865	2 P.
	Aberdeen - -	- - -	—	—	1	Royal Burgh -	City Chamberlain	1865	1
Argyll	- - - -	- - -	—	1	1	County - -	Sheriff Clerk and Clerk of Peace.	1866	1
Ayr	- - - -	- - -	—	2	—	Do. - -	Chief Constable -	1865	1 P.
	Ayr - - -	- - -	—	1	—	Burgh - -	Dean of Guild -	1860	1
	Cambletown -	- - -	—	1	—	Do. - -	Do. - -	1826	1
	Irvine - -	- - -	—	1	—	Do. - -	Town Clerk -	1862	1
	Kilmarnock -	- - -	—	—	1	Do. - -	Inspector - -	1862	1
Berwick	- - - -	- - -		1	—	County - -	Clerk of Peace -	1860	1 P.
	Lander - -	- - -	-	1		Royal Burgh -	Dean of Guild -	1826	—
Banff	- - Banff - -	- - -	—	1	—	Burgh - -	Provost - -	1859	1
Bute	- - - -	- - -	—	1	—	County - -	Sheriff - -	1825	1
	Rothsay - -	- - -	—	1	—	Royal Burgh -	Customer of the Shire.	1826	1
Caithness	- - - -	- - -	—	1	—	County - -	Chief Constable -	1861	1 P.
	Wick - -	- - -	—	1	—	Burgh - -	Inspector - -	1835	1
Clackmannan	- - - -	- - -	1	—	—	County - -	Clerk of Peace -	1863	1
	Calross - -	- - -	—	1	—	Burgh - -	Dean of Guild -	1826	1
Cromarty	- - - -	- - -	1	—	—	County - -	Sheriff - -	1826	1
Dumbarton	- - - -	- - -	—	1	2	Do. - -	Clerk of Peace -	1861	1
	Dumbarton -	- - -	—	1	—	Burgh - -	Town Clerk -	1862	1
Dumfries	- - - -	- - -	—	1	1	County - -	Inspector - -	1862	1
	Annan - -	- - -	—	—	1	Burgh - -	Town Clerk -	1863	1
	Dumfries - -	- - -	1	—	—	Do. - -	Inspector - -	1860	1
	Sanquhar - -	- - -	—	1	—	Do. - -	Town Clerk -	1835	1

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
Edinburgh	- - - -	- - -	—	—	3	County - -	Chief Constable -	1862	2 P.
	Edinburgh - -	- - -	2	—	—	City - - -	Deputy City Clerk	1866	2 P.
	Leith - -	- - -	—	1	—	- - - -	Town Clerk -	1835	1
Elgin - -	Elgin - -	- - -	—	1	—	Burgh and County	Convener of County	1826	1
Fife - - -	- - - -	- - -	—	3	—	County - -	Weights and Measures Committee for County.	1865	2 P.
	Anstruther, East -	- - -	—	1	—	Royal Burgh -	Chief Magistrate -	1863	1
	Burntisland -	- - -	—	—	1	Do. - -	Town Clerk -	1860	1
	Crail - -	- - -	—	—	1	Do. - -	Chief Magistrate -	1826	1
	Cupar, Fife -	- - -	—	1	—	Borough - -	Dean of Guild -	1826	1
	Dunfermline -	- - -	—	1	—	Do. - -	Do. - -	1826	1
	Inverkeething -	- - -	—	1	—	Royal Burgh -	Bailies - -	1826	1
	Kinghorn - -	- - -	—	—	1	Burgh - -	Provost - -	1835	1
	Kirkcaldy - -	- - -	—	1	—	Do. - -	Town Clerk -	1859	1
	Pitteneveen -	- - -	—	1	—	Royal Burgh -	Chief Magistrate -	1826	1
	St. Andrews -	- - -	—	1	—	City - - -	Town Clerk -	1859	1
Forfar - -	- - - -	- - -	—	3	—	County - -	Clerk of Peace -	1866	2 P.
	Aberbrothock -	- - -	—	1	—	Royal Burgh -	Town Clerk -	1866	1
	Brechin - -	- - -	—	1	—	Do. - -	Chief Magistrate -	1826	1
	Dundee - -	- - -	—	2	—	Guildry - -	Town Clerk -	1835	1
	Forfar - -	- - -	—	1	—	Royal Burgh -	Provost - -	1826	1
	Montrose - -	- - -	—	1	—	Do. - -	Dean of Guild -	1825	1
Haddington -	- - - -	- - -	—	1	—	County - -	Clerk to Justices -	1860	1 P.
	Berwick, North -	- - -	—	—	1	Royal Burgh -	Chief Magistrate -	1826	1
	Dunbar - -	- - -	—	—	1	Do. - -	Town Clerk -	1826	1
Inverness - -	- - - -	- - -	—	1	—	County - -	Clerk of Peace -	1860	1
	Inverness - -	- - -	—	1	—	Royal Burgh -	Town Clerk -	1860	1
Kircudbright -	- - - -	- - -	—	1	—	County - -	Inspector for the Stewartry.	1865	1
	Kircudbright -	- - -	—	—	1	Burgh - -	Chief Constable -	1860	1 P.
Kincardine -	- - - -	- - -	—	1	—	County - -	Custodier (*sic*) -	1861	—
Kinross - -	- - - -	- - -	—	2	—	Do. - -	Deputy Lord Lieut.	1826	1
Lanark - -	- - - -	- - -	—	6	—	Do. - -	Chief Constable -	1866	2 P.
	Airdrie - -	- - -	—	1	—	Burgh - -	Town Clerk -	1861	1
	Calton - -	- - -	—	1	—	Do. - -	Do. - -	1859	1
	Glasgow - -	- - -	1	—	2	City - - -	Do. - -	1866	1
	Lanark - -	- - -	—	1	—	Royal Burgh -	Do. - -	1826	1
	Patrick - -	- - -	—	—	1	Burgh - -	Dean of Guild -	1856	1
		Gorbalos -	—	—	1	Barony of (Glasgow).	Clerk of Barony -	1859	1
Linlithgow -	- - - -	- - -	—	1	—	County - -	Clerk of Peace -	1863	1 P.
Nairn - -	Nairn - -	- - -	—	1	—	Burgh - -	Dean of Guild -	1826	1
Orkney - -	- - - -	- - -	1	—	—	Isles of - -	Sheriff Substitute -	1859	1
Peebles - -	- - - -	- - -	—	1	—	County - -	Chief Constable -	1860	1 P.
	Peebles - -	- - -	—	—	1	Royal Burgh -	Dean of Guild -	1860	1
Perth - -	- - - -	- - -	—	1	—	County - -	Chief Constable -	1860	1 P.
	Perth - -	- - -	—	1	—	City - - -	Lord Provost -	1861	1
Renfrew - -	- - - -	- - -	1	1	1	Lower Ward of Renfrewshire.	Clerk of Peace -	1866	1 P.
	Paisley - -	- - -	1	1	—	Burgh - -	Chamberlain -	1860	1
	Pollockshaws -	- - -	1	—	—	Do. - -	Provost - -	1840	1
	Renfrew - -	- - -	—	1	—	Do. - -	Do. - -	1860	1
Ross and Isle of Lewis.	- - - -	- - -	—	2	—	County - -	Clerk of Peace -	1860	1 P.
	Tairn - -	- - -	—	1	—	Burgh - -	Magistrates - -	1860	1
Roxburgh -	- - - -	- - -	—	1	—	County - -	Chief Constable -	1862	1 P.
Selkirk - -	- - - -	- - -	—	1	—	Do. - -	Dean of Guild -	1860	1
Shetland (see Zetland).									
Stirling -	- - - -	- - -	—	1	—	Do. - -	Clerk of Peace -	1860	1
	Falkirk - -	- - -	—	—	1	Burgh - -	Inspector - -	1861	1
	Stirling - -	- - -	—	1	—	Do. - -	Town Clerk -	1826	1
Sutherland -	- - - -	- - -	—	1	—	County - -	Clerk of Peace -	1865	1

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified.			Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
			Complete Sets.	Full Sets.	Short Sets.				
Wigtown	Stranaer	—	—	1	—	Burgh	Dean of Guild	1826	1
	Wigtown	—	—	1	—	Burgh and District	Eldest Bailie	1861	1
Zetland	—	—	—	1	—	The Lordship of	Sheriff Clerk	1866	1
34	52	1	9	78	24	—	—	—	87*

* Including 18 Police *ex officio* Inspectors, as nearly as can be ascertained.

IRELAND.

Antrim	—	—	—	5	—	County	Treasurer	1859	2 P.
	Belfast	—	—	2	—	The Council	Town Clerk	1848	1
	Carrickfergus	—	—	1	—	County and Town	Inspector	1835	1
Armagh	—	—	—	2	—	County	Inspector of Police	1863	2 P.
Carlow	—	—	—	2	1	Do.	Do.	1862	1 P.
Cavan	—	—	—	1	—	Do.	Do.	1863	1 P.
Clare	—	—	—	1	—	Do.	Do.	1856	1 P.
	Ennis	—	—	1	—	Borough	Provost	1827	1
Cork	—	—	—	2	1	County	Inspector	1862	1 P.
	Cork	—	2	—	—	City	Treasurer	1861	1
	Kinsale	—	—	1	—	Town	Sovereign of Town	1826	1
	Yougal	—	—	—	1	Do.	Mayor	1826	1
Donegal	—	—	—	1	1	County	Inspector	1862	1 P.
Down	—	—	—	4	—	Do.	Sub-Inspector of Police.	1861	2 P.
Dublin	—	—	—	4	—	Do.	Head Constable	1862	2 P.
	Dublin	—	1	—	1	City	Lord Mayor	1862	2
		St. Sepulchre's	—	1	—	Liberty of	Archbishop of Dublin.	1828	—
Fermanagh	—	—	—	1	—	County	Sub-Inspector of Constabulary.	1863	1 P.
	Inniskillen	—	—	1	—	Borough	Chairman of Town Council.	1861	1
Galway	—	—	—	2	—	County	Sub-Inspector of Constabulary.	1863	1 P.
	Galway	—	—	1	—	County of Town	Inspector	1861	1 P.
Kerry	—	—	—	8	2	County	Sub-Inspector of Constabulary.	1863	2 P.
Kildare	—	—	—	1	—	Do.	Treasurer	1861	1 P.
Kilkenny	—	—	—	2	—	Do.	Clerk of Peace	1861	1 P.
	Kilkenny	—	—	1	—	City	Town Clerk	1862	1
King's County	—	—	—	2	—	County	Inspector	1862	1 P.
Leitrim	—	—	—	2	—	County	Sub-Inspector of Constabulary.	1862	1 P.
Limerick	—	—	—	2	—	County	Secretary to Grand Jury.	1856	1 P.
	Limerick	—	—	1	1	Corporation	Mayor	1861	1
Londonderry	Londonderry	—	—	2	1	City	Inspector	1862	1 P.
Longford	—	—	—	1	—	County	Do.	1861	1 P.
	Longford	—	—	1	—	Borough	Do.	1825	1
Louth	Dundalk (See also Drogheda.)	—	—	1	—	District of Dundalk.	Do.	1863	1 P.
Mayo	—	—	—	2	—	County	Clerk of Peace	1862	1 P.
Meath, East	—	—	—	1	—	Do.	Do.	1863	1 P.
	County of Drogheda.	—	—	1	—	Town and County of.	Inspector	1862	1 P.
Meath, West	—	—	—	1	1	County	Do.	1861	1 P.
	Athlone	—	—	1	—	Corporation	Do.	1826	1
Monaghan	—	—	—	1	—	County	Do.	1866	1 P.
Queen's County	—	—	—	3	—	Do.	Do.	1862	2 P.

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Number of Sets of Standards verified. Complete Sets.	Full Sets.	Short Sets.	Specification of Place, Officer, &c., for which, or for whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.	Probable Number of Inspectors employed.
Roscommon	—	—	—	1	—	County	Sub-Inspector of Constabulary.	1864	1 P.
Sligo	—	—	—	2	—	Do.	Clerk of Peace	1862	1 P.
Tipperary	—	—	—	4	—	Do.	Sub-Inspector of Constabulary.	1866	2 P.
Tyrone	—	—	—	1	—	Do.	Do.	1858	1 P.
	Strabane	—	—	—	1	Town	Inspector	1835	1 P.
Waterford	—	—	—	1	—	County	Secretary to Grand Jury.	1828	1 P.
	Waterford	—	—	1	—	County and City	Mayor	1861	1
Wexford	—	—	—	4	—	County	Inspector	1864	2 P.
	Wexford	—	—	—	1	Corporation	Do.	1861	1
Wicklow	—	—	—	5	—	County	Do.	1861	2 P.
32	19	1	3	86	12	—	—	—	59*

* Including 44 Police *ex officio* Inspectors.

List of British Colonies, or Dependencies, and of Foreign Governments for which Imperial Standards have been verified.

British Colonies and Dependencies.	Foreign Governments.	Number of Sets of Standards verified. Complete Sets.	Full Sets.	Short Sets.	For whom verified.	Into whose Custody to be delivered.	Date of last Official Verification or Re-verification.
AMERICA, NORTH.							
	Cincinnati, Ohio	—	—	1	The Town of	Not recorded	1837
New Brunswick	—	—	—	1	The Province of	The Treasurer	1854
Newfoundland	—	—	1	1	The Colony of St. John	Colonial Secretary	1854
Nova Scotia	—	—	—	1	Town and City of Halifax	Mayor	1855
	United States	—	—	1	The Government	Not recorded	1837
Vancouver's Island.	—	—	1	—	The Crown Agent for Colonies.	Officer administering the Government of Vancouver.	1865
AMERICA, SOUTH.							
Guiana	—	4	—	—	British Guiana	The Receiver-General, Demerara.	1851
	Brazil	—	—	1	Imperial Mint	Master of the Mint, Rio de Janeiro.	1866
Antigua, W. Ind.	—	—	2	2	The Colony of	Treasurer	1858
Belize, Honduras	—	2	—	—	The Town of	,,	1864
Bermuda, W. Ind.	—	—	1	—	The Island of	,,	1845
Grenada	—	—	1	—	The Colony of	Inspector for time being	1836
Jamaica	—	22	—	—	Jamaica	Receiver-General	1843
Trinidad	—	2	1	—	The Island	Officer administering the Government.	1864
AFRICA.							
Cape Good Hope	—	—	—	1	The Colony	Officer administering the Government.	1859
Natal	—	—	2	—	Corporation of D'Urban	The Town Clerk	1858
					Municipality of Pietermaritzburg.	The Mayor	1853
Sierra Leone	—	—	1	1	Sierra Leone	Officer administering the Government.	1854
St. Helena, Island of.	—	—	—	1	Island of	,, ,,	1854
ASIA.							
Hong Kong	—	—	2	1	The Government of	H.M.'s Storekeeper	1858
Bengal, E. Indies	—	2	1	—	The Presidency	Commissary of Ordnance and Head of the Mint	1864
Bombay ,,	—	1	—	1	,,	Head of the Mint	1841
Madras	—	1	2	1	,,	Head of the Mint	1841
						Inspector-General of Ordnance.	1864
						Inspector-General of Medical Department.	1865

Appendix I.—*continued.*

British Colonies and Dependencies.	Foreign Governments.	Number of Sets of Standards verified. Complete Sets.	Full Sets.	Short Sets.	For whom verified.	Into whose Custody to be delivered.	Date of last Official Verification or Re-verification.
			AUSTRALIA.				
Melbourne	- - -	—	—	1	The Government of Victoria	The Superintendent of Melbourne Observatory.	1864
New South Wales	- - -	9	—	—	The Colony of - -	Officer administering the Government.	1852
Queensland	- - -	—	6	—	„ - -	Colonial Secretary - -	1861
South Australia	- - -	—	1	—	„ - -	Officer administering the Government.	1853
Victoria	- - -	1	2	—	„ - -	„ „	1865
Western Australia	- - -	—	1	6	„ - -	The Governor - -	1862
Zealand, New, Island of.	- - -	1	2	—	The Government - -	Colonial Secretary - -	1862
			EUROPE.				
Malta	- - -	1	—	—	The Island - - -	Governor-General - -	1858
Man, Isle of	- - -	—	1	—	„ - - -	Clerk of the Rolls - -	1840
Jersey „	- - -	—	—	1	„ - - -	The Viscount of Jersey -	1844
	Russia - -	—	—	1	The Imperial Government -	Not recorded - -	1838
29	4	46	28	23			

List of Government Departments and of Private Persons for whom Secondary Standards have been verified.

Government Departments.	Private Use.	Number of Sets of Standards verified. Complete Sets.	Full Sets.	Short Sets.	For whom verified.	Into whose Custody delivered.	Date of last Official Verification or Re-verification.
Admiralty	- - - -	—	—	4	The Lords Commissioners.	Storekeeper, Deptford	1852
	Ackroyd, Messrs., Halifax -	—	—	1	Private use - -	- - - -	1835
	Avery, W. and J., Birmingham	1	—	—	- - - -	- - - -	1835
	Bank of England - -	—	—	1	The Bank, London -	Chief Cashier - -	1856
	Bennet, J., Tutbury, Stafford -	—	—	1	Private use - -	- - - -	1835
	Bourne, T., Birmingham -	—	—	1	„ -	- - - -	1835
	Cannon Company, Spiling -	—	—	1	The Cannon Company	The Manager - -	1825
	Clayton, Messrs., Settle, York -	—	—	1	Private use - -	- - - -	1828
	Cheshire and Baylis, Messrs., Liverpool.	—	—	1	„ - -	- - - -	1848
	Colvill and Co., Calcutta -	—	—	1	„ - -	- - - -	1831
	Cook, W., Glandford, Norfolk -	—	—	1	„ - -	- - - -	1826
H.M.'s Customs	- - - -	—	—	1	Commissioners, London	Principal Guager -	1865
„	- - - -	—	—	1	Do., Liverpool	Commissioners - -	1834
	Davis, W., Dublin - -	—	—	1	Private use - -	- - - -	1826
	Day, W., Birmingham -	—	1	—	„ - -	- - - -	1835
	Distillery, Bungay, Norfolk -	—	—	1	„ - -	- - - -	1826
	Bebby, M., Langfyllen, Montgomery.	—	—	1	„ - -	- - - -	1826
	Falkirk Foundry - -	—	—	1	„ - -	- - - -	1826
	Founders' Company - -	—	—	1	Master and Warden, London.	Clerk to the Company	1866
	„ „ - -	—	—	1	Master and Warden, Birmingham.	„ „	1825
	Freeman, W., Henley, Oxon	—	1	—	Private use - -	- - - -	1826
Greenwich Royal Hospital.	- - - -	—	1	—	The Commissioners -	- - - -	1826
	Goldsmith Company - -	—	—	1	The Master and Warden, London.	Clerk to the Company	1866
	Jones, T., Macclesfield -	—	—	1	Private use - -	- - - -	1826
	Longton Market Company, Stafford.	—	1	—	The Market Company -	The Solicitor to the Company.	1850
	Milton Ironworks, York -	—	—	1	Private use - -	- - - -	1826
	Mersey Docks and Harbours, Lancaster.	—	1	—	„ - -	- - - -	1858
Military Stores	(See also War Department) -	—	—	1	H.M.'s Government -	Principal Storekeeper, Tower.	1865
Mint, Royal	- - - -	—	—	1	„ - -	Master of Mint -	1865
	Phœnix Foundry, Sheffield -	—	—	1	Private use - -	- - - -	1826
	Taylor, J., Bishop's Stortford -	—	—	1	„ - -	- - - -	1826
	St. Katharine Dock Company -	—	1	—	„ - -	- - - -	1834
	Sangster, J., Portsea - -	—	—	1	„ - -	- - - -	1826
	Soho Works, Birmingham -	—	—	1	Bolton and Watt -	Private use - -	1835
	Vandome, Messrs., London -	—	—	1	Private use - -	- - - -	1851
	Warmishaw, Messrs., London -	—	—	1	„ - -	- - - -	1856
War Department	(See also Military Stores) -	—	—	1	Commissariat Department.	Commissariat-General, Dublin.	1863
„	- - - -	—	—	1	„ „	Barrack Master, Aldershot.	1863
	Williams, Dudley - -	—	—	1	Private use - -	- - - -	1827
6	30	1	6	35			

Appendix I.—*continued.*

SUMMARY.

	Number of Places.	Number of Sets of Standards verified. See Note, page 24.				Probable Number of Inspectors employed.
		Complete Sets.	Full Sets.	Short Sets.	Total.	
ENGLAND.						
Counties (see note, page 11)	40	28	323	158	509	177
Cities, towns, &c.	235	26	208	110	344	241
Manors	57	3	18	39	60	29
WALES:						
Counties	12	1	26	10	37	16
Cities, towns, &c.	13	—	7	6	13	12
	357	58	582	323	263	475
SCOTLAND:						
Counties	34	3	41	9	53	35
Cities, burghs, &c.	52	6	37	14	57	51
Barony	1	—	—	1	1	1
	87	9	78	24	111	87
IRELAND:						
Counties	32	—	69	4	75	39
Cities, towns, &c.	19	3	16	8	25	20
Manor or liberty	1	—	1	—	1	—
	52	3	86	12	101	59
Total in Great Britain and Ireland	496	70	746	359	1,175	621
British colonies and dependencies	29	46	28	19	93	Not known.
Foreign governments	4	—	—	4	4	,,
British Government Departments	6	—	1	9	10	Nil.
Private use (including Bank of England)	30	1	5	26	32	,,
	69	47	34	58	139	—
Total	565	117	780	417	1,314	621*

* The total number of Inspectors includes 262 police officers, who are ex officio Inspectors of Weights and Measures (viz., England 188, Wales 12, Scotland 18, Ireland 44: total of 262 police officers).

H. J. CHANEY.

Standard Weights and Measures Department,
October 29, 1866.

(D.) *See* p. 5.

SEPARATE LIST of CITIES and TOWNS in ENGLAND and WALES, being Counties in themselves, with the Number of SETS of IMPERIAL STANDARDS verified for each Place.

1861.

	Complete.	Full.	Short.
Berwick-on-Tweed	—	1	—
Bristol	1	—	1
Canterbury	—	1	—
Carmarthen	—	1	—
Chester	1	—	—
Exeter	—	1	—
Gloucester	—	1	—
Haverfordwest	—	1	—
Kingston-upon-Hull	—	1	—
Lichfield	—	1	—
Lincoln	—	2	—
London (City)	—	7	4
Newcastle-upon-Tyne	1	—	—
Nottingham	—	1	1
Poole	—	1	—
Southampton	—	1	9
Worcester	—	1	1
York	—	1	—

Appendix I.—*continued.*

(E.) *See* p. 5.

LIST of PLACES for which COPIES of the IMPERIAL STANDARDS have been officially verified, but have not been re-verified, as directed by the Act 22 & 23 Vict., c. 56.;* showing also their Population in 1861, and the date of the last Official Verification.

ENGLAND.

COUNTIES.	Cities, Towns, &c.	Manors.	Population in 1861.	Number of Sets of Standards requiring Re-verification.		Date of last Verification or Re-verification.
				Sets of Weights.	Sets of Measures.	
BEDS	-	Luton	15,329	1	1	1837
	-	Woburn	1,764	1	—	1851
BERKS	Wallingford	-	2,793	1	1	1834
	Wokingham	-	2,404	1	1	1835
		Farringdon	2,943	1	1	1827
BUCKS	-	Winslow	1,890	1	—	1847
CAMBRIDGE	-	Cambridge	26,361	1	1	1840
CORNWALL	Helston	-	3,843	1	1	1826
	Launceston	-	2,790	1	—	1858
	Penryn	-	3,547	1	—	1835
	Penzance	-	9,414	1	1	1826
	St. German's	-	2,842	1	—	1830
	St. Ives	-	7,027	1	—	1831
	Truro	-	11,337	1	1	1826
		Duchy and Stannaries	Not known.	2	—	1834
CUMBERLAND	Wokington	-	6,467	1	—	1854
DERBY	-	Glossop	19,126	1	1	1845
DEVON	Exmouth	-	5,228	1	—	1838
	Holsworthy	-	1,724	1	—	1836
	Okehampton	-	1,929	2	1	1835
	Stonehouse, East	-	14,343†	—	1	1833
		Tavistock	8,965	1	1	1826
DORSET	Bridport	-	7,719	1	1	1835
	Dorchester	-	6,283	1	1	1835
	Poole	-	9,759	1	1	1826
	Weymouth	-	11,383	1	1	1844
		Gillingham	3,957	1	1	1826
DURHAM	Gateshead	-	33,587	1	1	1846
ESSEX	Havering	-	9,260	1	2	1835
		Wetherfield	1,727	1	—	1828
GLOUCESTER	Cheltenham	-	39,693	1	1	1826
	Cirencester	-	6,336	1	—	1831
	Wotton-under-Edge	-	3,673	1	—	1829
	-	Besley	4,692	1	—	1836
	-	Churchdown	659	2	1	1836
	-	Cirencester Hundred	Not known.	1	—	1836
	-	Hempstede	424	1	—	1837
	-	Presbury and Deerhurst	2,227	1	—	1837
	-	Stow-in-the-Wold	1,374	1	—	1837
	-	Swell, *alias* Nether-swell	449	1	—	1836
HANTS, I. OF WIGHT	Newport	-	7,934	1	1	1840
	Ryde	-	9,269	1	1	1831
		Stockbridge	935	1	—	1826
HEREFORD	Hereford	-	15,585	1	1	1835
	Leominster	-	5,658	1	1	1847
HERTS	Bishop's Stortford	-	4,673	1	1	1836
	Hemel Hempstead	-	2,974	1	—	1826
	Hitchin	-	6,330	1	—	1826
		Cheshunt	6,592	1	—	1856
KENT	Bexley	-	4,944	1	—	1830
	Chatham	-	36,177	1	1	1826
	Dartford	-	5,314	1	—	1833
	Deal	-	7,531	1	—	1826
	Lydd	-	1,667	1	—	1826
	Queensboro'	-	973	1	1	1835
	Ramsgate	-	11,865	2	2	1835
		Brasted	1,182	1	—	1826
		Swancombe	2,323	1	—	1858
LANCASTER	Accrington	-	13,872	1	1	1828
	Clitheroe	-	7,000	1	1	1835
	Lancaster	-	14,487	1	1	1827
	Warrington	-	26,431	1	—	1854
	Wigan	-	37,658	1	1	1835
		Manchester	Population of Manor not known.	1	1	1825
		Rochdale	38,114	1	1	1826
LINCOLN	Boston	-	14,712	1	—	1850
	Frampton	-	843	1	1	1849
	Grantham	-	11,116	1	—	1856
	Great Grimsby	-	11,067	1	1	1846
		Alford	2,658	1	—	1850
		Belton	1,871	1	1	1826

* All counties, cities, towns, and other places are by sec. 1 of the Act 22 & 23 Vict. c. 56. directed to have one or more of their standards re-verified at this Department within a certain period (weights once in every five years, measures once in every ten years); otherwise their standards cannot be used in carrying out the laws relating to weights and measures.

† See Registrar-General's remarks, Census, 1861.

Appendix I.—*continued.*

Counties.	Cities, Towns, &c.	Manors.	Population in 1861.	Number of Sets of Standards requiring Re-verification.		Date of last Verification or Re-verification.
				Sets of Weights.	Sets of Measures.	
Middlesex	Chelsea, St. Luke's	-	Not known	2	—	1839
	Rolls' Liberty	-	2,274	—	1	1828
	St. Marylebone	-	161,680	2	2	1845
		Heston	7,096	1	1	1853
		Isleworth	8,437	1	1	1853
		Twickenham	8,079	1	1	1853
		Savoy, London	380	1	—	1825
Monmouth	Newport	-	23,249	1	1	1835
Norfolk	Buckenham	-	656	1	1	1826
	Diss	-	3,164	2	1	1835
	Thetford	-	4,208	1	1	1851
	Walsham, North	-	2,896	1	1	1854
Northampton	Daventry	-	4,124	1	1	1826
	Higham Ferrers	-	1,152	1	1	1844
Northumberland	Berwick-on-Tweed	-	13,265	1	1	1826
		Alnwick	7,350	1	—	1836
		Corbridge and Prudhoe	1,340	1	—	1852
		Hexham	5,270	1	—	1840
		Newburn and Tynemouth	1,008	1	—	1852
		Rothbury	798	1	—	1852
		Wackworth and Alnmouth	1,182			1852
Nottingham	Retford, East	-	2,982	1	1	1835
Oxon	Banbury	-	4,059	1	1	1845
		Oxford	27,560	1	1	1858
Somerset	Oxbridge	-	799	1	1	1825
	Glastonbury	-	3,496	1	1	1843
	Wells	-	4,648	1	1	1835
		Watchet	Not known	1	—	1856
Stafford	Bilston	-	24,364	1	—	1849
	Burslem	-	22,327	1	1	1826
	Hanley	-	31,593	—	1	1847
	Newcastle-under-Lyne	-	12,938	1	1	1850
	Tamworth	-	4,326	1	1	1826
	Tutbury	-	1,982	1	—	1836
Suffolk	Eye	-	2,430	1	—	1836
	Halesworth	-	2,382	2	1	1826
	Orford	-	948	1	1	1825
	Southwold	-	2,032	1	1	1853
Surrey	Battersea	-	19,600	1	—	1826
	Camberwell	-	71,488	2	1	1826
	Clapham	-	20,894	1	—	1826
	Godalming	-	2,321	1	—	1826
	Guildford	-	8,020	1	—	1856
	Mitcham	-	5,078	1	—	1827
		Croydon	Population of these manors not known.	1	—	1829
		Old Paris Garden		1	—	1826
		Southwark		1	—	1841
Sussex	Grinstead, East	-	4,266	1	—	1856
	Rye	-	3,738	1	1	1826
	Worthing	-	5,805	2	2	1852
Warwick	Stratford-on-Avon	-	3,672	1	1	1847
	Sutton Coldfield	-	4,662	1	1	1826
Worcester	Dudley	-	44,951	2	1	1827
	Evesham	-	4,680	1	1	1835
	Stourbridge	-	8,166	1	1	1826
		Cutsden	Not known	1	—	1836
		Evesham	Do.	1	—	1837
Wilts	Devizes	-	6,638	1	1	1846
	Marlboro'	-	3,684	1	1	1835
	Swindon	-	4,167	1	1	1842
		Oldborne	1,539	1	—	1826
		Trowbridge	9,626	1	—	1826
York	Hedon	-	975	1	1	1826
	Kingston-upon-Hull	-	97,661	1	1	1826
	Richmond	-	4,290	2	1	1848
	York	-	40,433	1	1	1825
Nil.	93	44	—	146	83	—

WALES.

Carmarthen	Llanelly	-	11,084	1	1	1825
Denbigh	Denbigh	-	5,946	1	—	1846
Glamorgan	Cardiff	-	32,954	1	—	1826
Radnor	Rhayader	-	846	1	—	1829
Nil.	4	Nil.	—	4	1	—

Appendix I.—*continued.*

SCOTLAND.

Counties.	Cities, Towns, &c.	Manors.	Population in 1861.	Number of Sets of Standards requiring Re-verification.		Date of last Verification or Re-verification.
				Sets of Weights.	Sets of Measures.	
Argyll	Cambletown	-	6,033	1	1	1826
Berwick	Lauder	-	1,137	1	1	1826
Bute	Rothesay	-	7,122	1	1	1826
Caithness	Wick	-	1,551	1	1	1835
Cromarty	-	-	82,707*	2	1	1826
Dumfries	-	-	-	—	—	—
	Sanquhar	-	1,628	1	1	1835
Elgin	Elgin (town and country)	-	38,959	1	1	1826
Fife	Crail	-	1,211	1	—	1826
	Cupar Fife	-	4,980	1	1	1826
	Inverkeithing	-	1,512	1	1	1826
	Kinghorn	-	1,230	1	—	1835
	Kirkcaldy	-	5,199	1	—	1859
	Pittenween	-	1,671	1	1	1826
	St. Andrew's	-	5,141	1	—	1859
Forfar	Brechin	-	4,720	1	1	1826
	Montrose	-	13,443	1	1	1825
Haddington	Berwick (North)	-	1,164	1	—	1826
	Dunbar	-	3,516	1	—	1826
Kinross	-	-	8,924	1	1	1826
Lanark	Lanark	-	5,384	1	1	1826
Nairn	Nairn	-	3,827	1	1	1826
Perth	Culross	-	517	1	1	1826
Renfrew	Pollockshaws	-	7,648	2	1	1840
Stirling	Stirling	-	10,271	1	1	1826
Wigtown	Stranraer	-	3,980	1	1	1826
2	23	Nil.	—	27	19	—

IRELAND.

Antrim	Belfast	-	121,602	1	1	1848
	Carrickfergus	-	9,422	1	1	1835
Clare	Ennis	-	9,318	1	1	1827
Cork	Kinsale	-	8,335	1	1	1826
	Youghal	-	8,378	1	—	1826
Dublin	-	St. Sepulchre's Liberty	Not known	1	1	1828
Limerick	-	-	172,801	2	—	1856
Longford	Longford	-	6,825	1	—	1856
Meath, West	Athlone	-	10,549	1	1	1826
Tyrone	-	-	238,500	1	—	1858
	Strabane	-	43,604	1	—	1835
Waterford	-	-	110,959	1	1	1828
Wexford	-	-	143,954	4	4	1854
4	8	1	—	17	11	—

SUMMARY.

Number of Places whose Standards have not been Re-verified, as directed by Law.

—	Counties.	Cities, Towns, &c.	Manors.
England	Nil.	93	44
Wales	Nil.	4	Nil.
Scotland	2	23	Nil.
Ireland	4	8	1
Total	6	128	45

179, or about 36 per cent. of the whole number of places (496) given on page 22.

Henry J. Chaney.

Standards Department, October 29, 1866.

* Including County of Ross.

Appendix I.—*continued.*

(F.) *See* p. 6.

LIST of PLACES for which COPIES of the GAS MEASURING STANDARDS have been officially verified pursuant to the Sale of Gas Act, 22 & 23 Vict. c. 66.

PLACE.	Number and Description of Standards verified.		
	1-foot Gas-holder.	5-feet Gas-holder.	10-feet Gas-holder.
ABERDEEN (City) -	—	1	1
ASHTON-UNDER-LYNE -	—	—	1
AYR (Borough) - -	—	—	1
BATH - - -	—	1	1
BIRMINGHAM - -	—	—	2
BLACKBURN - -	—	—	1
BOLTON - - -	—	—	1
BRADFORD - -	—	—	1
BRIGHTON - -	—	1	1
BRISTOL - - -	—	1	1
CARLISLE - - -	—	—	1
CORK (City) - -	—	1	2
DUBLIN - - -	—	1	2
DUNDEE - - -	—	1	1
EDINBURGH - -	—	9	2
EXETER - - -	—	—	1
GREENOCK - -	—	—	1
GLOUCESTER (County) -	—	1	1
HULL - - -	—	—	1
KINGSTON-ON-THAMES -	—	—	10
LANARK - - -	—	1	—
LANCASTER - -	—	1	—
LEEDS - - -	1	1	1
LINCOLN - - -	—	1	1
LIVERPOOL - -	—	2	2
LONDON (City) - -	—	—	14
LONDON (Metropolitan Board of Works) -	1	11	34
LOUTH - - -	—	—	1
LYNN - - -	—	1	1
MANCHESTER - -	—	—	4
MIDDLESBOROUGH -	—	—	1
NEWPORT (Monmouth) -	1	—	1
OLDHAM - - -	—	1	3
PERTH (City) - -	—	—	1
PORTSMOUTH - -	—	—	2
PRESTON - -	—	—	2
READING - -	—	—	1
ROCHESTER - -	—	—	1
SALFORD - -	—	—	2
SCARBOROUGH - -	—	—	1
SHEFFIELD - -	2	1	1
STALEYBRIDGE - -	—	—	1
WAKEFIELD - -	—	—	1
WIGAN - - -	—	1	—
WINCHESTER - -	—	1	—
WORCESTER - -	1	—	—
YARMOUTH - -	—	—	1
YORK - - -	—	—	1
Total - -	6	39	111
	156		

SUMMARY.

	Number and Description of Standards verified.		
	1-foot Gasholder.	5-feet Gasholder.	10-feet Gasholder.
ENGLAND.			
1 County - - - - -	—	1	1
37 Cities, Towns, &c. - - -	6	25	99
SCOTLAND.			
7 Cities, Towns, &c. - - -	—	12	6
IRELAND.			
2 Cities, Towns, &c. - - -	—	2	4
47 Places.	6	40	110

Oct. 29, 1866. HENRY J. CHANEY.

Appendix I.—*continued.*

(G.) *See* p. 10.

Convictions for Using False Weights, Measures, and Balances.

Abstract of Returns to the House of Commons (No. 15, 1859, No. 94, 1863, No. 11, 1864, No. 56, 1865), of Convictions within the Police District of the Metropolis.

Place.	Date of Convictions in Year ending	Number of Persons Convicted.	Total Amount of Penalties.	Total Amount of Costs.	To whom Penalties Paid.	To whom Costs Paid.	Amount of Penalties and Costs awarded to Inspector.	Annual Salary paid to Inspector.	Whether False Balances are seized or not.
			£ s. d.	£ s. d.			£ s. d.	£ s. d.	
MIDDLESEX.									
The County -	Dec. 31, 1857	118	82 17 1	16 12 0	Half to Inspector, half to Treasurer Metropolitan Police or Treasurer for County.	Justices' Clerk and Constable at each Petty Sessional Division.	41 8 6	150 0 0	Not seized. Clerk to Justices states that it is illegal to seize balances.
	Mar. 25, 1862	130	85 15 6	33 9 0			42 17 9		
	Mar. 25, 1863	317	238 18 0	62 0 6			119 9 0		
	Mar. 25, 1864	307	243 3 0	73 12 0			121 11 6		
Liberty of the Tower - -	Dec. 31, 1857	204	381 0 0	Not stated	Half to Inspector -	Not stated -	195 10 0	Not stated -	Not seized.
	Mar. 25, 1862	13	6 2 6	1 13 0	Half to Liberty Rate.	Do. - -	3 1 3	Do. - -	Do.
City of Westminster - - -	Dec. 31, 1857	581	121 3 11	None -	Half to Bailiff; half towards expenses - -	None - -	None -	70*l.* and 50*l.* each.	Seized.
	Mar. 25, 1862	334	122 9 6						
	Mar. 25, 1863	329	221 13 6						
	Mar. 25, 1864	299	176 9 6						
City of London -	Mar. 25, 1864	120	46 14 0	18 0 0	City rates - -	Not stated -	None -	202 10 0 150 0 0	Not seized.
Parish of St. Marylebone - -	Dec. 31, 1857	49	25 10 0	None -	Vestry - - -	None - -	None -	No salary given.	Seized.
	Mar. 25, 1862	42	23 10 0						
	Mar. 25, 1863	72	41 0 0						
	Mar. 25, 1864	77	43 0 0						
Parish of St. Pancras - - -	Dec. 31, 1857	193	48 17 6	None -	Poor rates - -	None - -	None -	Do. - -	Seized.
	Mar. 25, 1862	25	10 15 0						
	Mar. 25, 1863	54	13 1 6						
	Mar. 25, 1864	41	11 0 0						
SURREY.									
That part of the County within the Police District of the Metropolis - -	Mar. 25, 1862	212	221 11 0	13 13 6	Half to Inspector, half to County Treasurer or Treasurer of Metropolitan Police.	Inspector and Justices' Clerk -	117 13 3*	300 0 0	Seized when used in public streets. Not seized when used in shops, warehouses, &c.
	Mar. 25, 1863	282	318 14 6	13 1 6			165 18 3		
	Mar. 25, 1864	251	231 15 6	19 19 6			125 17 6		
Borough of Kingston-on-Thames -	Mar. 25, 1862	5	2 7 6	3 0 0	Half to Inspector for County, half to County Treasurer - - -	Justices' Clerk -	1 3 9	Not stated	Not seized.
	Mar. 25, 1863	2	1 5 0	1 4 0			0 12 6		
	Mar. 25, 1864	6	2 10 0	3 12 0			1 5 0		

* In the Croydon district all condemned weights, measures, and balances are given to the Inspector.

(H.) *See* p. 10.

Proposed Form of Returns from Local Inspectors, &c., Weights and Measures.

Proposed Circular.

Standard Weights and Measures Department,
Board of Trade, 6, Old Palace Yard,
Westminster, , 1866.

Sir,

I am directed to request that you will cause to be filled up the enclosed Form of Return of Weights and Measures for the year ending 31st December 1866, and transmit it to me at the earliest possible time, in order that the information contained in it may be laid before the Standard Commission.

In cases of other denominations of weights and measures than those specified in the enclosed Form being dealt with, they should be stated separately.

I have also to request that you will at the same time report or cause to be reported to me any special circumstances in reference to weights and measures which may have been brought under your notice, or that of the local Inspector during the year, and which may appear to deserve attention; particularly whether any or what local, customary, or other weights and measures other than the several denominations of the special standards, are in general use in your locality, and whether such local, customary, or other weights and measures have been officially stamped.

I am, &c.

Warden of the Standards.

To the Clerk of the Peace,
or Town Clerk,
or Inspector of Weights and Measures } for

Proposed Form of Returns.

(Note.—The same forms of Returns to be used for Ireland, with an addition to be made to Return 1 of the number of sub-standards in use.)

Weights and Measures, Great Britain.

In the Year ending 31st December 1866.

(*Name of County, City, Borough, &c.*)

Returns:—I. Of the Number of Copies of Standards of Weights and Measures in use during the Year, and the Date when last verified or re-verified at the Exchequer or Board of Trade, or, in the case of any County containing more than one District or Division for the Inspection of Weights and Measures, when last locally verified or re-verified.

II. Of the Number and Description of Weights and Measures compared and stamped during the Year.

III. Of the Number examined in Shops and other Places, showing the number found correct, requiring adjustment, and seized, together with the number of Convictions.

IV. Of the Number and Amount of Penalties and the amount of Costs, showing to whom paid.

V. Of the Total amount of Receipt in respect of Weights and Measures applicable to the Costs of Inspection; distinguishing the proportion of Penalties applicable to the payment of such Costs, produce of Weights, &c. seized, the amounts of Fees for Stamping and for Adjusting Weights and Measures, together with the Total Expenditure for Salaries and Expenses, showing the amount of the Salary and the Emoluments of the Inspector.

Appendix I.—*continued.*

I.—Number of Copies of Standards of Weights and Measures in use.

| | | |

Appendix I.—*continued.*

	Liquid Measures.										Wooden Measures for Dry Goods.							
Measures of Capacity.	4 Gallons.	2 Gallons.	1 Gallon.	¼-Gallon.	Quart.	Pint.	½-Pint.	Gill.	¼-Gill.	Total.	Bushel.	½-Bushel.	Peck.	½-Peck.	¼-Peck.	⅛-Peck.	Total.	

	Yards.
Measures of Length.	

	Cubic Foot Bottles.	10-feet Gasholders.	5-feet Gasholders.	1-foot Gasholders.
Gas Measures.				

Total - - - - -

III.—Number of Weights and Measures examined in Shops and other Places, &c.

——	Weights.	Measures.	Beams, Scales, and Balances.	Steelyards.	Other Weighing Machines.			Total.
Number examined in shops and other places -								
Number found correct - - - -								
Number requiring adjustment - - -								
Number seized—								
Weights or selling scale too heavy or measure too large.								
Weights or selling scale too light or too small.								
Otherwise defective or unjust - - -								
Number of convictions—								
Weights, &c., too heavy or too large -								
Do. too light or too small -								
Do. otherwise unjust - -								

IV.—Number and Amount of Penalties, and the Amount of Costs; showing to whom paid.

Number of Penalties.						Total Amount of Penalties.	Total Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
5*s.* and under.	Above 5*s.*, and not exceeding 10*s.*	Above 10*s.*, and not exceeding 20*s.*	Above 20*s.*, and not exceeding 40*s.*	Above 40*s.*, and not exceeding 60*s.*	Above 60*s.*, and not exceeding 5*l.*				

V.—Total Amount of the Receipts in respect of Weights and Measures applicable to the Costs of Inspection; distinguishing the Proportion of Penalties applicable to Expenditure of the Local Inspection, &c.; of the Produce of Weights, &c. seized; of Fees for Stamping; and of Fees for Adjusting; together with the Total Expenditure for Salaries and Expenses, showing the Amount of the Salary and Emoluments of the Inspector.

Proportion of Penalties applicable in Payment of Total Expenditure.	Total Produce of Weights, &c. seized.	Total Fees for Stamping.	Total Fees for Adjusting.	Total Receipt applicable to Total Expenditure.	Total Expenditure for Salaries and Expenses.	Total Amount of Salary and Emoluments of Inspector.

Dated 18 .

(Signed)

Inspector of Weights and Measures.*

[* State if *ex officio* Inspector, as Inspector of Police, or if other person in charge of the local standards.]

To the Warden of the Standards,
Board of Trade,
6, Old Palace Yard, Westminster.

APPENDIX II.

Paper delivered by the Warden of the Standards.

Preliminary Paper on the Allowance of Error in the Comparison and Verification of Standards, and the Question of Commercial Allowance in the Comparison with Local Standards of Weights and Measures.

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1. Allowance of error in the verification of standards.

1. Allowance of error in the verification of standards.

How to be legalized under Standards Act, 1866.

Such an allowance is now for the first time to be sanctioned by law under the following provision of the Standards Act of last session, 29 & 30 Vict. c. 82. s. 5.:—"It "shall be lawful for Her Majesty in Council from time to "time by Order in Council to define the amount of error "to be tolerated in other secondary standards of length "and of weight and of capacity, when compared with the "Board of Trade standards."

Necessity of determining amount of error to be tolerated.

It has, in point of fact, now become necessary to fix and determine the smallest amount of error in the comparison of standards with the official standards, in consequence of the certain detection of the slightest difference, by means of the very accurate and highly finished apparatus now used in the Department, which difference can be noted. The exact difference of every standard weight and measure, being within the limits allowed, should be stated in the indenture of verification. See, for example, Mr. Chisholm's report on the verification of the primary standard yard and pound for the colony of Victoria, and the consequent sanction of this proposed regulation by the Treasury.

Allowance recommended by Standard Commission, 1841.

In their Report of 1841, the Standard Commission recommended that in the official comparison of standards of weight, no greater error than $\frac{1}{20000}$th of the quantity weighed be tolerated; of measures of length no greater error than $\frac{1}{12000}$th of the whole, except as to the chain of twenty-two yards, of which no error exceeding $\frac{1}{20}$th of an inch should be allowed; and of measures of capacity, no greater error than $\frac{1}{200}$th of the whole.

This recommendation has not been carried into effect further than on the single occasion of the verification of the Victoria standards, under the sanction of the Treasury, as referred to in the previous paragraph.

Tolerance of error in comparison of bullion standards.

Upon the occasion of the construction in 1853, and the verification in 1855, of the bullion standards, and when the very accurate balances for the comparison of these standard weights were furnished to the Department (which balances are now in use and indicate the minutest difference in weight), the question was necessarily raised as to the amount of error or difference to be tolerated. The opinions upon this subject of Mr. Miller, of the Bank of England, and of Professor Miller, which were communicated to this Department, will be found appended. In effect, although there is no direct sanction of law, the practice of the Department has been to tolerate an error or difference, either in excess or deficiency, of one division of the index of the balance used.

See (A.)

Actual errors in the official bullion standards.

The actual errors of the official bullion standards furnished for the use of the Department were stated by Professor Miller in his letter of 22nd August 1855, together with the value, in decimal parts of a grain, of one division of the index of each of the four balances, as observed by him when comparing certain of the bullion standards.

Example of errors allowed in bullion standards verified in 1865 for the Mint.

The following is an example of the errors which were actually allowed in the verification of a set of bullion standards for the Mint, in 1865.

Actual errors noted and tolerated in the bullion weights verified at the Exchequer for the Mint, on 22nd May 1865:—

500	oz.	0·25	grain heavy.
400	„	0·125	„ light.
300	„	0·0625	„ „
200	„	0·16	„ „
100	„	0·05	„ „
50	„	0·16	„ „
40	„	0·12	„ „
30	„	0·0387	„ heavy.
20	„	0·125	„ light.
10	„	0·002	„ „
5	„	0·0013	„ heavy.
4	„	0·0015	„ „
3	„	0·001	„ „
2	„	0·001	„ light.
1	„	0·0375	„ „
0·5	oz.	0·0416	„ „
0·4	„	0·0125	„ heavy.
0·3	„	0·00025	„ „
0·2	„	0·00025	„ light.
0·1	„	0·005	„ heavy.
0·05	„	0·0003	„ „
0·04	„	0·0002	„ „
0·03	„	0·00004	„ „
0·02	„	0·00025	„ light.
0·01	„	0·00045	„ heavy.
0·005	„	0·0001	„ light.
0·004	„	0·00045	„ heavy.
0·003	„	0·00015	„ „
0·002	„	0·0004	„ „
0·001	„	0·00045	„ „

Errors allowed in comparison of gas measuring standards.

Although section 12 of the Sale of Gas Act of 1859 authorized gas meters to be stamped if not more than 2 per cent. incorrect in favour of the buyer, or 3 per cent. in favour of the seller, there was no provision made in this Act, under which gas measuring standards were legalized, for any error to be allowed in the comparison of local gas

Appendix II.—*continued.*

measuring standards with the official standards. In his report of 11th February 1860, the Astronomer Royal recommended an allowance of half a cubic inch, or $\frac{1}{3456}$th of the whole, as the amount of error which might with propriety be tolerated in each cubic foot gasholder compared in this Department. This allowance was accordingly sanctioned by the Treasury in their Minute of 24th February 1860. On the further recommendation of the Astronomer Royal, this allowance was subsequently extended by Treasury letter of 24th April 1861 to $\frac{1}{200}$th part, or $\frac{1}{2}$ per cent. over or under, in the gas measures under comparison.

Scale of remedies or errors to be tolerated, suggested by Mr. Chaney.

It now remains for the Standard Commission to consider and report to the Board of Trade what definite allowance of error should be allowed in the comparison of standard weights and measures in the Department. To aid their deliberations, Mr. Chaney has, under my directions, prepared a scale of remedies which may be conveniently adopted in the comparison of each specified standard weight and measure, *so far as regards the practice of the Department*. This proposed scale of remedies is appended.

See (B.)

He suggests a very much smaller allowance of error in comparison for scientific researches than for the ordinary local standards. Before determining this question, it will probably be thought desirable that the Commissioners should have before them the evidence on this point of some of the manufacturers of weights and measures and some of the local Inspectors, who have much larger experience in the actual errors of the local standards at different periods after adjustment and verification.

Evidence of manufacturers and local inspectors desirable.

Question of errors to be tolerated in local verifications.

There is also another point which deserves serious consideration, the question of allowance for error in the comparison of standards *when locally verified*. Strictly speaking, the standards thus locally verified ought to be as accurate as those verified in this Department, and no greater allowance of error be tolerated. But practically it is impossible that, with inferior instruments for comparison, more especially for the smaller measures of length now proposed to be legalized as standards, the local comparison can be made with anything approaching the accuracy of the official comparison. This observation applies with much greater force also to the comparison of sub-standards in Ireland.

But such local verification deprecated; alteration of law suggested.

The truth is, that no local verification whatever of standards should be allowed. It is a totally new principle, only lately introduced, and with the view of saving expense in the several localities—partly of the transmission of the standards to London, partly, perhaps, of the higher charges of London tradesmen, and partly of the official fees. This last increase of expense is now discontinued, and I am informed by Messrs. De Grave that the expense of the due re-verification of a set of county standards, at the periods now prescribed by law, will average not more than 4*l.* per annum. I am of opinion that every standard weight and measure should be duly verified in the Standards Department only, and should also be re-verified there, after any re-adjustment has been found requisite, and that to this extent the law should be altered.

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2. Question of allowing any error in the comparison of weights and measures in common use.

Difference between allowance for error in standards, and in ordinary weights and measures.

This question stands on a totally different footing from that of the allowance of error in the comparison of standards, and more particularly of comparisons in the Standards Department. It is absolutely necessary, as before stated, to make legal provision for the errors to be tolerated in the official comparisons of standards, as the very smallest amount of difference is shown by the use of the elaborate apparatus now furnished to the Department. But in the comparisons that are made of the weights and measures in common use, it is probable that a far greater error than what may be allowed in standards would not be detected at all.

Difficult question also of balances and weighing machines.

There is also the difficult question of balances to be dealt with. No official comparison or verification of balances has ever yet been authorized or made, although if any system of official supervision of the local standards and apparatus is to be established, it will be as necessary to have an examination of the balances as of the weights, and also to test their accuracy. But convictions occur for inaccuracies in balancies and weighing machines in common use, as well as weights and measures, and if any definite amount of error is to be allowed in these last, an analogous allowance must be made in the case of balances and weighing machines.

No recommendation on the subject by Standards Commission or Committee.

Amongst the many recommendations made by the Standards Commission and Committee, there appears to be none for any allowance of error in comparing ordinary weights and measures, although the subject was brought under the consideration of the Standard Committee, who reported in 1854.

Evidence on the question, appended to Report of 1854.

The following evidence respecting this allowance of error is appended to their Report:—

Captain Dawson.*—Stamps foot scales. The error which he allows is the breadth of a line of his bar, about $\frac{1}{1000}$ inch.

Mr. Wade.†—I thought that tradesmen might be legally allowed a trifling error in their weights and measures; but on seriously considering it I am decidedly of opinion that it would be a very great evil. For instance, if $\frac{1}{100}$th part should be legally allowed, there are many tradesmen who would take advantage of it, and have their weights and measures made so much deficient. In that case they would never be correct. But I still think that tradesmen should not be fined for a very trifling error, if it occurs in fair wear, without intent of fraud.

Messrs. Warner.‡—We are of opinion that no deficiency in weights or measures ought to be allowed by law.

Mr. Reynolds.—I think it would be bad policy to make any allowance, by Act of Parliament, for wear and tear. It would open a door to fraud. The dishonest dealer would have all his weights made light as far as his allowance went.

Mr. De Grave.§—It is my opinion, and that after much consideration, that not the least allowance for error or incorrectness ought on any account to be allowed by Act of Parliament, either in weights, scales, or balances used by tradesmen. It is true the weights will get a little light and balances will get incorrect by use; but it is the duty of the tradesman or owner to guard against that, which every person can easily do.

Mr. Sharp.—In troy weight we tolerate no inaccuracy, but in large weights of silver do not break 10 dwt., nor in gold 6 gr. The allowance of 10 dwt. applies to bars of silver of 50 to 80 lbs.; of 6 gr. to ingots of gold of 15 to 20 lbs.

Mr. Cubitt.‖—With regard to the amount of error which can be tolerated in any of the different measures, this admits of almost as many answers as there are purposes to which measures can be applied. Generally speaking, as a practical man, errors in lineal measures of from $\frac{1}{1000}$th to $\frac{1}{300}$th are to be tolerated. Common carpenters' rules (2 feet) frequently vary $\frac{1}{16}$th or $\frac{1}{20}$th of an inch in their length.

Evidence now furnished to the Department by some of the principal local inspectors.

The replies to this Department of seven of the principal local Inspectors of Weights and Measures as to the opinion they had formed from their practical experience upon the question of any allowance for error in public weights and measures, as well as in balances will be found in Appendix VI. No. 12; and it will be seen that their evidence is generally opposed to any such allowance for error being sanctioned by law.

And by Mr. Hayman, on the part of the trading community.

On the other hand, Mr. Hayman, who describes himself as "Secretary of the Society for promoting the interests of the Trading Community," in a series of letters addressed to the President of the Board of Trade, which will also be found in Appendix VI., No. 5, complains not only of the injustice but the impossibility of exacting undeviating accuracy in weights and measures ordinarily used by tradesmen, when they are sufficiently correct for all practical and business purposes, whilst the law as it now stands tolerates errors in the standards, where accuracy is most of all needed, and he prays that the matter be fully investigated.

Precedent for allowing errors in measures, in the case of gas meters.

It may be permitted to point out, that there is a precedent for tolerating errors in the weights and measures in common use, afforded in the case of gas meters, as already stated (page 30). Whilst an average error of 2½ per cent. either in excess or deficiency is thus allowed by the Sale of Gas Act, on gas meters, the tolerance of an error of ½ per cent. has been similarly sanctioned by the Treasury in the official comparisons of local gas measuring standards. The amount of error thus allowed for gas measures in common use is five times as great as that allowed in gas measuring standards.

It will be for the Commission to consider the evidence and information already furnished upon the subject, and to determine how far further evidence may be required, as well as to report their views upon it.

(Signed) H. W. Chisholm,
Warden.

Standards Department,
January 19, 1867.

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* Report, 1854, Appendix (K.), page 65.
† Ibid., page 105.
‡ Ibid., page 103.
§ Ibid., page 93.
‖ Ibid., page 38.

Appendix II.—*continued.*

(A.) *See* p. 30.

Tolerance of Error in Comparison of Bullion Standards.

Extract of Letter to the Assistant Comptroller of the Exchequer from Mr. Miller, late Chief Cashier of the Bank of England, dated October 3, 1853.

Having provided the Superintendent with the best weights and balances, *and as even with these requisites his comparisons can never be critically correct*, I would allow him a remedy of a certain weight, apportioned to every particular weight he will have to verify, within which the error must lie. I would not allow any error of deficiency to pass, whatever difference existed should be on the side of excess, and within the remedy.

This remedy should be calculated upon the basis of $\frac{5}{1000}$ths of an ounce upon the 1,000 ounce weight, which should be $\frac{5}{1000000}$ths of the whole weight.

To carry out this principle exactly might involve the use of too many minute weights. I should, therefore, lay down some such scale as the following as sufficiently near for the purpose:—

Weight.	Remedy.		Weight.	Remedy.	
oz.	oz.	grain.	oz.	oz.	grain.
1,000	0·005	=2·4	5	0·00005	
500	0·0025	=1·2	4	0·00005	
400	0·002	=0·96	3	0·00005	=0·024
300	0·0015	=0·72	2	0·00005	
200	0·001	=0·48	1	0·00005	
100	0·0005	=0·24	0·5	0·000025	
50	0·00025	=0·12	0·4	0·000025	
40	0·00025		0·3	0·000025	=0·012
30	0·0002	=0·096	0·2	0·000025	
20	0·0001	=0·048	0·1	0·000025	
10	0·00005	=0·024			

Why I should confine the remedy to the side of excess is, that if it were to be divided, part to range above and part below, it would not be sufficient, either above or below, to very much facilitate the Superintendent's business; and if the whole amount were to range above and below, the discrepancy between any two weights of the same denomination might be nearly double the remedy, which would be too large a difference.

Observations by Professor W. H. Miller on the above Suggestions of Mr. Miller, of the Bank of England, dated October 7, 1853.

I do not consider it desirable to confine the remedy to excess. Such a regulation would have the effect of introducing a false standard among weight-makers a little in excess. Well-kept weights of alloys of copper have a tendency to increase in weight by the oxidation of the surface. The remedy suggested seems needlessly large. In the 10 oz. weight it amounts to 0·024 grains. In the single weighing of a pound with one of Oertling's or Barrow's balances I do not think an error of 0·01 grains ever occurs. I should prefer taking about $\frac{2}{3}$ths of the remedy suggested in the different cases, and allow it to range either above or below. The limit of the mark to be hit by the weight-maker would be very nearly the same in both cases, his trouble, consequently, would not be increased. A remedy of 0·010 grains in a 10 oz. weight would absolutely give the superintendent, if provided with a good balance, no more trouble than a remedy of 0·020 grains. Limiting the remedy to excess would be a premium on slovenly work, for the effect of trying to make one weight very nearly equal to another is very commonly to reduce it a little too much. Consequently, in order to avoid the danger of having a weight rejected for a very small error in defect, weight-makers would have their weights with a much larger error in excess.

The amount of "remedy," or allowable error in a weight ought to be determined by law. My recommendation carries no authority with it. Should any well-grounded fear arise that weight-makers would fraudulently make their weights less than the standard, if any error in defect were allowed, this danger might be met by allowing a certain error or "remedy," one-third of which should be in defect, and two-thirds in excess, or one-fourth in defect and three-fourths in excess, or in any other proportion that might be considered best. The absolute rejection of a weight for being a very little too light is a great check to any attempts to make the weight very accurate.

(B.) *See* p. 31.

Proposed Scale of Remedies or Allowances for Error in the Official Comparison of Standards.

Remedy for Weights.

As the question of remedies for weights is essentially one of balances, the following remedies have been adapted to the balances, of four different sizes, made by Oertling, and used in the Department for scientific weighings of standards, and for comparing copies of the bullion standards, from 500 ozs. downwards; being designated as Balance No. 1, No. 2, No. 3, and No. 4, the largest being No. 1; as well as to the four balances constructed in 1824 by De Grave & Co., and used for comparing the local standard weights, from 56 lbs. downwards, and designated as Balance A, B, C, and D. It may appear disproportionate to allow the same remedy on the pound that is allowed on the ounce, but the remedy is practically applicable only to the balance whether used with a pound or an ounce, as will be seen from the following table. *The remedies are proposed to be used either in excess or deficiency.*

Commercial or Local Standards.

Balance used.	Denomination of Standard.	Remedy proposed, in excess or deficiency. In Grains, + or −.	In Parts of the whole Quantity weighed.	In Effect upon the official Balance.
Balance C.	Troy, 1 lb.	0·1	$\frac{1}{5760}$	Pointer inclines about 6 degrees.*
	„ 6 ozs.	—	$\frac{1}{2880}$	
	„ 3 „	—	$\frac{1}{1440}$	
	„ 2 „	—	$\frac{1}{960}$	
	„ 1 „	—	$\frac{1}{480}$	
Balance D.	„ 10 dwts.	0·05	$\frac{1}{480}$	Pointer inclines about 5 degrees.
	„ 5 „	—	$\frac{1}{240}$	
	„ 3 „	—	$\frac{1}{144}$	
	„ 2 „	—	$\frac{1}{96}$	
	„ 1 „	—	$\frac{1}{48}$	
	„ 12 grains	0·025	$\frac{1}{48}$	Pointer inclines about 5 degrees.
	„ 6 „	—	$\frac{1}{24}$	
	„ 3 „	—	$\frac{1}{12}$	
	„ 2 „	—	$\frac{1}{8}$	
	„ 1 „	—	$\frac{1}{4}$	

* When the balances (A, B, C, D) used for comparing commercial or local standards are *in equilibrio*, the pointer is at right angles to the beam; and when one pan is over-weighted the pointer is inclined about 20 degrees. In the balances (1, 2, 3, 4) used for bullion and scientific weights when the balances are *in equilibrio*, the pointers rest at the middle figure of the index, viz., 50, and when one pan is over-weighted the pointers rest at the extreme reading of 100, or of 0.

Appendix II.—*continued.*

Balance used.	Denomination of Standard.	Remedy proposed, in Excess or Deficiency. In Grains, + or −.	Remedy proposed, in Excess or Deficiency. In Parts of the whole Quantity weighed.	Remedy proposed, in Excess or Deficiency. In effect upon the Official Balance.
Balance, No. 1.	Bullion, 500 ozs.	1	$\frac{1}{240000}$	Resting point differs about 20 divisions.*
	„ 400 „	—	$\frac{1}{192000}$	
	„ 300 „	—	$\frac{1}{144000}$	
	„ 200 „	—	$\frac{1}{96000}$	
Balance, No. 2.	„ 100 „	0·25	$\frac{1}{192000}$	Resting point differs about 10 divisions.
	„ 50 „	—	$\frac{1}{96000}$	
	„ 40 „	—	$\frac{1}{76800}$	
	„ 30 „	—	$\frac{1}{57600}$	
	„ 20 „	—	$\frac{1}{38400}$	
Balance, No. 3.	„ 10 „	0·025	$\frac{1}{192000}$	Resting point differs about 10 divisions.
	„ 5 „	—	$\frac{1}{96000}$	
	„ 4 „	—	$\frac{1}{76800}$	
	„ 3 „	—	$\frac{1}{57600}$	
	„ 2 „	—	$\frac{1}{38400}$	
Balance, No. 4.	„ 1 „	0·005	$\frac{1}{96000}$	Resting point differs about 10 divisions.
	„ 0·5 „	—	$\frac{1}{48000}$	
	„ 0·4 „	—	$\frac{1}{38400}$	
	„ 0·3 „	—	$\frac{1}{28800}$	
	„ 0·2 „	—	$\frac{1}{19200}$	
	„ 0·1 „	—	$\frac{1}{9600}$	
	„ 0·05 „	—	$\frac{1}{4800}$	
	„ 0·04 „	—	$\frac{1}{3840}$	
	„ 0·03 „	—	$\frac{1}{2880}$	
	„ 0·02 „	—	$\frac{1}{1920}$	
	„ 0·01 „	—	$\frac{1}{960}$	
	„ 0·005 „	—	$\frac{1}{420}$	
	„ 0·004 „	—	$\frac{1}{384}$	
	„ 0·003 „	—	$\frac{1}{288}$	
	„ 0·002 „	—	$\frac{1}{192}$	
	„ 0·001 „	—	$\frac{1}{96}$	
Balance A.	Avoirdupois, 56 lbs.	5	$\frac{1}{78400}$	Pointer inclines about 8 degrees.
	„ 28 „	—	$\frac{1}{39200}$	
	„ 14 „	—	$\frac{1}{19600}$	
Balance B.	„ 7 „	2	$\frac{1}{24500}$	Pointer inclines about 8 degrees.
	„ 4 „	—	$\frac{1}{14000}$	
	„ 2 „	—	$\frac{1}{7000}$	
Balance C.	„ 1 „	0·25	$\frac{1}{28000}$	Pointer inclines about 10 degrees.
	„ 8 ozs.	—	$\frac{1}{14000}$	
	„ 4 „	—	$\frac{1}{7000}$	
	„ 2 „	—	$\frac{1}{3500}$	
	„ 1 „	—	$\frac{1}{1750}$	
Balance D.	4 8 dr.	0·05	$\frac{1}{4375}$	Pointer inclines about 5 degrees.
	„ 4 „	—	$\frac{1}{2187}$ nearly	
	„ 2 „	—	$\frac{1}{1094}$	
	„ 1 „	—	$\frac{1}{547}$	
	„ ½ „	—	$\frac{1}{273}$	

* When the balances (A, B, C, D) used for comparing commercial or local standards are *in equilibrio*, the pointer is at right angles to the beam and when one pan is over-weighted the pointer is inclined about 20 degrees. In the balances (1, 2, 3, 4) used for bullion and scientific weights, when the balances are *in equilibrio*, the pointers rest at the middle figure of the index, viz., 50, and when one pan is over-weighted the pointers rest at the extreme reading of 100, or of 0.

Appendix II.—*continued.*

Scientific.

Denomination of Standard.	Remedy proposed, in Excess or Deficiency.		
	In Grains.	In Parts of the whole Quantity weighed.	In effect upon the Official Balance.
Avoirdupois, 1 lb.	0·025	$\frac{1}{28000}$	Pointer inclines about half division.
„ 1 oz.	0·01	$\frac{1}{4375}$	Ditto.
Troy, 1 lb.	0·025	$\frac{1}{23040}$	Ditto.
„ 1 oz.	0·01	$\frac{1}{4800}$	Ditto.
Cubic gallon, weight of, when filled with water	1	Varies with the weight of the vessel in which the water is weighed.	Pointer inclines about two divisions.
Cubic foot, weight of, when filled with water	4		Pointer inclines about four divisions.

Remedy for Measures of Length.

Local or Commercial.

Yard	0·005 inch, or $\frac{1}{7200}$ part.	
Foot	0·001 „	$\left\{\frac{1}{12000}\right\}$ „
Inch		$\left\{\frac{1}{1000}\right\}$
0·1 inch	„ „	$\frac{1}{100}$ „

Scientific.

Yard	0·0005 inch, or $\frac{1}{72000}$ part, or about	15 div. of microm. (1 div. = about 0·0000315 inch.)
Foot	„ „ $\frac{1}{24000}$ „	„ „
Inch	„ „ $\frac{1}{2000}$ „	3 „
0·1 inch	„ „ $\frac{1}{200}$ „	„ „

Remedy for Measures of Capacity.

Local or Commercial (verified by Measurement).

Bushel	$\frac{1}{2}$ fluid Avoir. ounce, or	218·75	grains, or about	0·87 cubic inch.*
$\frac{1}{2}$-bushel	$\frac{1}{4}$ „	109·375	„	0·43 „
Peck	$\frac{1}{8}$ „	54·6875	„	0·22 „
Gallon	$\frac{1}{8}$ „	54·6875	„	0·22 „
$\frac{1}{2}$-gallon	$\frac{1}{5}$ „	87·5	„	0·35 „
Quart	$\frac{1}{10}$ „	43·75	„	0·175 „
Pint	$\frac{1}{20}$ „	21·875	„	0·087 „
$\frac{1}{2}$-pint	$\frac{1}{40}$ „	10·9375	„	0·044 „
Gill	$\frac{1}{80}$ „	5·46875	„	0·023 „
$\frac{1}{2}$-gill	$\frac{1}{160}$ „	2·734375	„	0·011† „

Fluid ounces and cubic inch measures are practically used, and are found the most convenient.

Scientific (verified by Weight).—See Weights.

(Signed) Henry J. Chaney.

Approved,
H. W. Chisholm,
Warden of the Standards.

* Or a bubble of air in the bushel when filled with water of about $1\frac{3}{4}$ inches diameter.
† Or a bubble in the half-gill of about the size of a pea.

APPENDIX III.

ABSTRACTS of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in GREAT BRITAIN for the Year ended 31 December 1866, with Remarks by the Warden of the Standards.

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APPENDIX III.

Abstract of Returns from the Local Inspectors of Weights and

Abstract A.—Number and Denomination of Standards

Note.—The Return was required to be made out for the year ended 31st December 1866; but it will be seen from the Return to be the last verification

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Bedfordshire	4 Subdivisions of the County, viz.:—								
	Bedford	64	—	—	40	4	—	108	4
	Biggleswade								
	Luton								
	Woburn								
	Bedford, Borough	16	—	—	10	1	—	27	1
	Luton, Manor	—	—	—	—	—	—	—	—
	Woburn, Manor	—	—	—	—	—	—	—	—
	Total for the County of Bedford	80	—	—	50	5	—	135	5
Berkshire	7 Subdivisions of the County, viz.:—								
	Abingdon and Wallingford District	16	—	—	10	1	—	189	7
	Farringdon	16	—	—	10	1	—		
	Maidenhead and Windsor	16	—	—	10	1	—		
	Newbury	16	—	—	10	1	—		
	Reading	16	—	—	10	1	—		
	Wantage	16	—	—	10	1	—		
	Wokingham	16	—	—	10	1	—		
	Abingdon, Borough	16	—	—	10	1	—	27	1
	Maidenhead, Borough	16	—	—	10	1	—	27	1
	Newbury, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Reading, Borough	*16*	—	—	*10*	*1*	*1*	*28*	*1*
	Wallingford, Borough	—	—	—	—	—	—	—	—
	Windsor, Borough	25	—	—	10	1	—	36	1
	Wokingham, Borough	—	—	—	—	—	—	—	—
	Farringdon, Manor	—	—	—	—	—	—	—	—
	Total for the County of Berks	201	—	—	120	12	*1*	*334*	12
Bucks	6 Subdivisions of the County, viz.:—								
	Central	92	15	—	40	6	—	153	15
	Northern								
	North-western								
	South-western								
	South-eastern								
	Part of South-western division								
	Buckingham, Borough	16	—	—	10	1	—	27	1
	Wycombe, Borough	32	—	—	10	1	—	43	*2*
	Winslow, Manor	—	—	—	—	—	—	—	—
	Total for the County of Bucks	140	15	—	60	8	—	223	18

APPENDIX III.

MEASURES in GREAT BRITAIN, for the Year ended 31 December 1866.

USED BY INSPECTORS, AND WHEN LAST VERIFIED.

following Abstract that in many instances the date of the last official verification of the local Standards is stated in the *previously to the date of the Return.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
1 set, 13 Feb. 1865 „ 12 May 1865	20 Oct. 1859	2 sets, 11 Apr. 1865		One full set verified in 1825, and re-verified in 1846, weights again re-verified in 1859, and on 13 Feb. 1865; measures re-verified 20 Oct. 1859. Two additional sets verified in 1848; weights re-verified in 1857, and measures in 1859. A fourth set verified on 20 Oct. 1859; weights re-verified 12 May 1865.
9 May 1864	24 Mar. 1859			Set of weights and five smaller measures of capacity verified in 1831, re-verified in 1847; weights re-verified in 1859, and in 1864. The five larger measures of capacity and the yard verified 24 March 1859.
				Full set verified on 16 Jan. 1837, stated in the return to have been presented to the parish by the Lord of the Manor, to be kept by the Churchwardens for the use of the parish, and to have been subsequently sold by the Churchwardens, and the proceeds thereof applied in purchase of sacramental plate.
				A set of avoirdupois weights verified for the township of Woburn on 28 August 1851. Inspection now transferred to county police.
1 set, 18 Feb. 1864	1 set, 20 Oct. 1857	Mar. 1864	Oct. 1867	A full set verified in 1825, re-verified in 1834. Six new full sets verified in 1857, and one additional set 11 Jan. 1858. One set of the weights re-verified 18 Feb. 1864, and one set of the measures since re-verified 7 April 1868.
4 Dec. 1861	4 Dec. 1861			Originally verified in 1826, re-verified in 1861.
Not stated	Not stated			Originally verified in 1826, re-verified 16 April 1860.
				No return made. But full set verified in 1825, re-verified 16 March 1860, and weights 4 Sept. 1867.
				No return made. Full set verified in 1830, and re-verified 7 Jan. 1860.
				Full set verified 27 Nov. 1834. Inspection and standards now transferred to county.
Feb. 1864				A full set verified in 1826; re-verified (including nine new avoirdupois weights from 8 ounces downwards) on 23 March 1864. Of the 25 avoirdupois weights certified by the Inspector to be in use in 1866, the nine old weights are illegal, not having been officially verified since 1826.
				A full set verified in 1835. Inspection now transferred to county.
				No return made. A short set was officially verified for the manor of Farringdon in 1827.
1 set, 4 Mar. 1867	1 set, 9 April 1861	April 1864	April 1867	One full set verified in 1826, re-verified in 1842, the three larger weights and the measures in 1852, all the weights and five smaller measures of capacity in 1856, and the three larger weights and five larger measures of capacity in 1861. A complete set, including troy weights, verified in 1835; avoirdupois weights re-verified in 1842, and again with the five smaller measures of capacity in 1856, and the three larger weights in 1861 and 1867; the troy weights re-verified in 1852, 1861, and 1867. Six additional short sets were verified in 1841, six in 1853, and one in 1855, and have been since re-verified.
Oct. 1861				A complete set, including troy weights, verified in 1826; all, except the troy weights, re-verified 18 Jan. 1862.
25 July 1862	25 July 1862			A full set, including duplicates of the weights from 4 lbs. to 4 dms., verified in 1841. A set, including 16 weights only, 12 being new weights, re-verified 25 July 1862.
				A short set verified in 1847, and not since re-verified. Inspection now transferred to county.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Cambridge -	4 Subdivisions of the County, viz.:—								
	Anington - - - -								
	Cambridge - - - -	64	—	—	40	4	—	108	4
	Leuton - - - -								
	Newmarket - - - -								
	Cambridge, Borough - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Ely, Isle of, Liberty of - - -	*48*	*15*	—	*30*	*3*	—	*96*	*3*
	Wisbech, Borough - - -	16 10	—	—	10	1	—	37	2
	Total for the County of Cambridge	154	15	—	90	9	—	268	10
Cheshire - -	10 Subdivisions of the County, viz.:—								
	Bricklow - - - -	16	—	—	10	1	—		
	Broxton - - - -	16	—	—	10	1	—		
	County set - - - -	16	—	—	7	1	—		
	Eddisburg - - - -	16	—	—	10	1	—		
	Hyde - - - - -	16	—	—	10	1	—	266	10
	Macclesfield - - - -	16	—	—	10	1	—		
	Nantwich - - - -	16	—	—	10	1	—		
	Northwich - - - -	16	—	—	10	1	—		
	Stockport - - - -	15	—	—	10	1	—		
	Wirral - - - -	16	—	—	10	1	—		
	Birkenhead, Town - - -	16	—	—	5	1	—	22	*1*
	Chester, City and Borough - -	17	15	—	10	1	—	43	1
	Congleton, Borough - - -	16	—	—	10	1	—	27	1
	Macclesfield, Borough - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Stockport, Borough - - -	16	—	—	7	1	—	24	1
	Total for the County of Chester	240	15	—	139	15	—	409	15
Cornwall - -	6 Subdivisions of the County, viz.:—								
	Bodmin - - - -								
	Helston - - - -								
	Launceston - - - -	96	—	—	60	6	—	162	9
	Liskeard - - - -								
	Penzance - - - -								
	Truro - - - - -								
	Bodmin, Borough - - - -	16	—	—	7	1	—	24	1
	Falmouth, Borough - - -	16	—	—	7	1	—	24	1
	Helston, Borough - - - -	14	—	—	10	1	—	25	1
	Launceston, Borough - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Liskeard, Borough - - -	16	—	—	7	1	—	24	1
	Penryn, Borough - - - -	14	—	—	7	1	—	22	1
	Penzance, Borough - - -	16	—	—	9	—	—	25	1
	St. Germans, Borough - - -	—	—	—	—	—	—	—	—
	St. Ives, Borough - - - -	15	—	—	10	1	—	26	1
	Truro, Borough - - - -	15	—	—	10	1	—	26	1
	Total for the County of Cornwall	234	—	—	137	14	—	385	15

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
1 set, 28 Mar. 1857 2 sets, 27 Jan. 1858 1 set, 17 May 1867	14 July 1856 28 March 1857 27 Jan. 1858	3 sets, 3 June 1867	3 sets, 3 June 1867	A full set verified in 1826; re-verified in 1840 and in 1856; the weights in 1867. Two additional full sets verified in 1857, and one in 1858; none since re-verified.
-	-	-	-	No return made. Inspection of weights and measures transferred from the University to the Borough by Local and Personal Act passed in 1856. A full set verified for the University in 1826; the weights re-verified in 1840, duplicates of this set from 4 lbs. down having been added to the set. A full set re-verified for the Borough of Cambridge on 17 Dec. 1867.
-	-	-	-	No return made. One full set verified in 1826, and re-verified on 6 Feb. 1857, the weights only on 23 Feb. 1864, the measures on 4 March 1867. A complete set, including troy weights, verified in 1834; the troy weights not since re-verified; the avoirdupois weights and measures re-verified in 1857, and on 31 Dec. 1866. A third full set verified 14 June 1859; weights re-verified 26 July 1864.
21 May 1867 24 July 1867	12 April 1862	-	-	A full set verified in 1834; re-verified 12 April 1862, and weights 21 May 1867. An additional set of the 10 smaller weights verified 24 July 1867.
Not stated	Not stated	March 1863 Nov. 1862 Nov. 1862 Dec. 1862 March 1863 Nov. 1862 Nov. 1862 Not stated March 1863 March 1863	March 1863 Nov. 1862 Nov. 1862 Dec. 1862 March 1863 Nov. 1862 Nov. 1862 Not stated March 1863 March 1863	One full set verified in 1826; re-verified in 1835 and 1859. Thirteen additional, but not all full sets, were verified in 1827; some of these were re-verified in 1835 and 1839, and four full sets (except the 56 lbs.) were re-verified 30 Oct. 1862. In 1855, 17 weights of 56 lbs. were verified. These were stated to be required for testing weighbridges. Application was at the same time made officially to verify a series of 112 lbs. weights, but the Comptroller-General of the Exchequer refused the application on the ground of their being no official standard of 112 lbs.
9 May 1864	9 May 1864	-	-	Originally verified in 1844; re-verified in 1850, and again in 1864.
8 Feb. 1866	4 June 1860	-	-	A complete set (with a duplicate ½ dram, and including troy weights) verified in 1826; re-verified (except the duplicate ½ dram and the troy weights) in 1845. A full set re-verified in 1860, and the 16 avoirdupois weights re-verified on 8 Feb. 1866. The troy weights have not been re-verified since 1826.
8 June 1863	8 June 1863	-	-	A full set originally verified 8 June 1863.
-	-	-	-	No return made. A full set verified in 1826; re-verified in 1834, and the weights in 1851, and on 22 Dec. 1859.
3 June 1863	3 June 1863	-	-	The seven measures of capacity verified in 1826 for the Manor of Stockport; the weights and yard in 1838; all (except the yard) re-verified in 1849; and all re-verified 3 June 1863.
26 Sept 1863	-	Sept. 1863	-	One full set verified in 1826, and re-verified in Aug. 1858. A second full set verified in 1834, and also re-verified in 1858. Two additional full sets and one set of troy weights verified in 1847; re-verified (except the troy weights) in 1858. A fifth full set verified in 1851; re-verified in 1858. The sixth full set verified in 1858, the weights re-verified 26 Sept. 1863; the full set since re-verified on 24 Aug. 1868. The remaining five full sets of weights and measures were last officially verified 25 Aug. 1858; one set of weights only having been since re-verified on 26 Sept. 1863.
20 Apr. 1863	-	-	-	Originally verified (*except the yard*) in 1863; the weights since re-verified 30 July 1868. No yard measure has been officially verified for the Borough of Bodmin.
-	-	-	-	Originally verified in 1827 for the Town of Falmouth; re-verified for the Borough 12 July 1860.
-	-	-	-	Originally verified in 1826, and since the date of the return re-verified, 23 Dec. 1867.
-	-	-	-	No return made. A full set verified in 1835; re-verified in 1850.
Feb. 1860	Feb. 1860	-	-	Originally verified in 1826; re-verified in 1835, and on 6 Mar. 1860; since re-verified (except the yard) on 23 Dec. 1867.
Not for 30 years	-	-	-	Originally verified in 1835, and not re-verified since.
-	-	-	-	Indenture stated to be missing. The weights and measures were originally verified in 1826, and have not been since re-verified.
-	-	-	-	Short set verified in 1830 for the clerks of the market. Inspection now transferred to county.
-	-	-	-	A full set verified in 1831; since re-verified on 9 Dec. 1866.
1858	Not known	-	-	A full set verified in 1826; the weights only since re-verified on 21 Aug. 1867. They are stamped "Founders Company, 1858."

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Cumberland	6 Subdivisions of the County, viz.:—								
	Brampton	96	—	—	60	6	—	162	6
	Carlisle								
	Cockermouth								
	Penrith								
	Whitehaven								
	Wigton								
	Carlisle, City	16	—	—	10	—	1	27	1
	Workington, Town	14	—	—	8	—	—	22	1
	Total for the County of Cumberland	126	—	—	78	6	1	211	8
Derby	12 Subdivisions of the County, viz.:—								
	Alfreton	16	—	—	10	1	—	342	13
	Ashbourn	16	—	—	10	1	—		
	Bakewell	16	—	—	10	1	—		
	Belper	16	—	—	10	1	—		
	Chapel-en-le-Frith	14	—	—	10	1	—		
	Chesterfield (including the Borough)	16	—	—	10	1	—		
	Derby	16	—	—	15	1	—		
	Eckington	16	—	—	5	1	—		
	Glossop (including the Borough)	16	—	—	10	1	—		
	Repton and Grisley	16	—	—	10	—	—		
	Smalley	16	—	—	5	1	—		
	Wirksworth	16	—	—	10	1	—		
	County set kept at Derby	16	—	—	10	—	—		
	Chesterfield, Borough	—	—	—	—	—	—	—	—
	Derby, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Glossop, Borough	—	—	—	—	—	—	—	—
	Total for the County of Derby	222	—	—	135	12	—	369	14
Devon	12 Subdivisions of the County, viz.:—								
	Barnstaple	16	—	—	10	1	—	319	12
	Bideford and Torrington	16	—	—	10	1	—		
	Castle District	17	—	—	10	1	—		
	Cullompton	16	—	—	10	1	—		
	Honiton	16	—	—	10	1	—		
	Okehampton	16	—	—	8	1	—		
	Paignton	16	—	—	10	1	—		
	Stanborough and Coleridge	16	—	—	10	1	—		
	E. Stonehouse, &c.	16	—	—	9	1	—		
	Tavistock	16	—	—	10	1	—		
	Teignbridge	13	—	—	10	1	—		
	Tiverton	16	—	—	10	1	—		
	Barnstaple, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Bideford, Town	*16*	—	—	*10*	*1*	—	*27*	*1*
	Bradninch, Borough	16	—	—	8	1	—	25	1
	Dartmouth, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Devonport, Borough	16	—	—	10	1	—	27	1
	Exeter, City and County	*32*	—	—	*20*	*2*	*1*	*55*	*2*
	Exmouth, Town	—	—	—	—	—	—	—	—
	Great Torrington, Town	—	—	—	—	—	—	—	—
	Holsworthy, Town and Manor	16	—	—	6	1	—	23	1
	Ilfracombe, Borough	—	—	—	—	—	—	—	—
	Molton, South, Borough	16	—	—	10	1	—	27	1
	Okehampton, Borough	—	—	—	—	—	—	—	—
	Plymouth, Borough	—	—	—	10	1	—	27	1
	Stoke Damerel, Parish	—	—	—	—	—	—	—	—

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
30 Dec. 1862	30 Dec. 1862	Jan. 1863	Jan. 1863	One full set verified in 1835; re-verified 24 Feb. 1860. A second full set verified in 1855, and not since officially re-verified. Three additional full sets verified 20 Nov. 1857, and the three smaller weights of one of these sets re-verified 6 Nov. 1865. A full set was verified in 1826 for the City of Carlisle in the County of Cumberland; re-verified in 1842, 1850, 30 Dec. 1862, and since re-verified on 9 Sept. 1867. This is included in the return as a county set.
July 1865	July 1865; gas, 1861.	-	-	A full set verified in 1853; re-verified on 6 June 1860, and the weights only re-verified 27 July 1865. (See remarks on the County Standards.)
1853	1853	-	-	A set of the 15 smaller weights only verified on 6 Feb. 1854, and not since re-verified.
28 Sept. 1864	29 Dec. 1834	21 Oct. 1864	-	Three full sets originally verified in 1826, the three sets of measures being respectively last re-verified in 1842, 1852, and 1858; one of the three sets of weights re-verified on 14 Dec. 1862, the two others on 28 Sept. 1864. Seven sets of weights originally verified in 1835; one set re-verified on 1 July 1858, and six sets 24 Nov. 1864. A further set of weights verified in 1842, and re-verified on 24 Nov. 1864. Two full sets verified on 24 Oct. 1854, and one set on 10 Feb. 1859, the weights belonging to which were re-verified on 25 April 1864; the measures not yet re-verified. Also seven sets of measures and one set of weights verified in 1835, which have never been re-verified.
28 Sept. 1864	16 Mar. 1850	6 July 1867	-	
24 Nov. 1865	20 Feb. 1835	-	-	
24 Nov. 1864	1835	-	-	
24 Nov. 1864	1834	6 Nov. 1865	-	
24 Nov. 1864	1835	29 Dec. 1866	-	
4 Dec. 1862	1834	12 Jan. 1867	-	
25 Apr. 1864	1854	-	-	
29 Dec. 1864	1835	-	-	
24 Nov. 1864	1835	-	-	
24 Nov. 1864	1854	-	-	
24 Nov. 1864	1835	-	-	
25 Apr. 1864	10 Feb. 1859	-	-	
-	-	-	-	A set officially verified 7 July 1858 for the Borough of Chesterfield; now transferred to county.
-	-	-	-	No return made. A full set officially verified 9 Mar. 1826 for the Borough of Derby; the weights re-verified 7 Nov. 1856, and again on 20 May 1865; the measures re-verified 12 June 1865.
-	-	-	-	A full set verified 4 Nov. 1845 for the market in the Town of Glossop; now transferred to county.
-	-	3 Aug. 1865	3 Aug. 1865	One set of measures originally verified in 1827, and re-verified in 1860. A set of weights verified in 1854, and last re-verified 7 May 1866. One full set verified 14 Feb. 1859, the weights belonging to which were re-verified 30 Nov. 1864, the measures not yet re-verified. The following Standards have also been verified for Devonshire, but have not yet been re-verified, viz., two full and two short sets issued in 1834, two full and two short sets issued in 1835, one short set issued in 1836, one in 1840, one full set in 1847, three short sets in 1848, and one full set on 28 June 1862.
Feb. 1859	Feb. 1859	-	-	
-	-	June 1862	June 1862	
-	-	20 Jan. 1865	14 Feb. 1859	
Feb. 1859	Feb. 1859	Oct. 1864	Oct. 1859	
-	-	7 Aug. 1863	7 Aug. 1863	
30 Nov. 1864	-	4 Dec. 1863	4 Dec. 1863	
Not at all	-	5 Mar. 1866	5 Mar. 1866	
Feb. 1859	-	3 Feb. 1863	-	
Feb. 1859	-	13 Sept. 1867	Feb. 1859	
-	-	1865	1865	
-	-	3 Apr. 1865	3 Apr. 1865	
-	-	-	-	No return made. A full set verified in 1826, re-verified in 1860, and last officially re-verified 7 Jan. 1867.
-	-	-	-	No return made. A full set verified 16 April 1860, and not since re-verified.
21 Aug. 1863	21 Aug. 1863	-	-	Originally verified in 1835, and re-verified in 1863.
-	-	-	-	No return made. A full set verified in 1826; re-verified 24 Nov. 1860, and again on 11 March 1866.
7 May 1866	6 June 1860	-	-	These standards were verified for the Parish of Stoke Damerel, which includes Devonport.
-	-	-	-	No return made. One full set was officially verified 25 Nov. 1825; the weights only were re-verified 31 Dec. 1866. A second set was verified in 1834; the weights were re-verified 17 Sept. 1857, and again (except 56, 28, and 14 lbs.) on 17 May 1867; the measures were last re-verified 12 Aug. 1861.
-	-	-	-	Fourteen avoirdupois weights and five measures verified for Town of Exmouth in 1838, and not since re-verified.
-	-	-	-	A full set was officially verified for this town on 20 Mar. 1826; the weights were re-verified in 1854 and in 1860, and one additional new weight was verified 13 Nov. 1862. The town clerk now reports that the Standards are no longer in use, and the inspection of weights and measures by the borough is discontinued.
-	-	-	-	Originally verified 30 Jan. 1836; not since re-verified.
-	-	-	-	A set was officially verified for the Borough of Ilfracombe in 1842, and was re-verified for the Local Board of Health on 27 June 1863. The inspection is now transferred to the county.
5 Apr. 1862	5 Apr. 1862	-	-	Full set originally issued in 1834 for Liberty of South Molton; the measures last re-verified 5 Apr. 1862, weights 7 Dec. 1867.
-	-	-	-	A full set and an additional set of weights was officially verified 25 Feb. 1826 for this borough; they have not been re-verified since, and the inspection is transferred to the county.
Dec. 1867	Dec. 1867	-	-	A full set verified in 1826; re-verified 10 March 1860, and again on 17 Dec. 1867.
-	-	-	-	No return made. See Devonport, Borough.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Devon—*cont.*	Stonehouse, East, Parish - - -	—	—	—	—	—	—	—	—
	Tiverton, Borough - - -	15	—	—	8	1	—	24	1
	Totnes, Borough - - - -	16	—	—	10	1	—	27	1
	St. Sidwell, Manor - - -	—	—	—	—	—	—	—	—
	Tavistock, Borough - - -	13	—	—	10	—	—	23	1
	Total for the County of Devon -	394	—	—	239	24	1	658	25
Dorset - -	9 Subdivisions of the County, viz. :—								
	Blandford - - - -								
	Bridport - - - -								
	Cerne - - - -								
	Dorchester - - - -								
	Shaftesbury - - - -	146	—	—	85	9	—	240	9
	Sherborne - - - -								
	Sturminster - - - -								
	Wareham - - - -								
	Wimborne - - - -								
	Bridport, Borough - - -	—	—	—	—	—	—	—	—
	Dorchester, Borough - - -	16	—	—	10	1	—	27	1
	Lyme Regis, Borough - - -	16	—	—	10	1	—	27	1
	Poole, Town and County - - -	13	—	—	13	1	—	27	1
	Weymouth, Borough - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Gillingham, Liberty and Manor -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Total for the County of Dorset -	223	—	—	138	14	—	375	14
Durham - -	12 Subdivisions of the County, viz.:—								
	Barnard Castle - - -	16	—	—	10	1	—	27	
	Bishop Auckland - - -	15	—	—	10	1	—	26	
	Castle Eden - - - -	14	—	—	10	1	—	25	
	Chester - - - -	16	—	—	10	1	—	27	
	Darlington - - - -	16	—	—	10	1	—	27	
	Durham - - - -	16	—	—	10	1	—	27	12
	Houghton-le-Spring - - -	16	—	—	10	1	—	27	
	Jarrow - - - -	16	—	—	10	1	—	27	
	Lanchester - - - -	16	—	—	10	1	—	27	
	Stanhope - - - -	16	—	—	10	1	—	27	
	West Hartlepool - - -	14	—	—	10	1	—	25	
	Durham, Head-quarters - -	16	15	—	10	1	—	42	
	Gateshead, Borough - - -	16	15	—	10	1	—	42	1
	Stockton-on-Tees, Borough - -	16	—	—	10	1	—	27	1
	South Shields, Borough - - -	16	—	—	10	1	—	27	1
	Sunderland, Borough - - -	16	—	—	10	1	—	27	1
	Total for the County of Durham -	251	30	—	160	16	—	457	16
Essex -	15 Subdivisions of the County, viz.:—								
	1 Dist. (Brentwood) - - -	16	—	—	10	1	—		
	2 „ - - -	16	—	—	10	1	—		
	3 „ (Colchester) - - -	16	—	—	10	1	—		
	4 „ (Dengie) - - -	16	—	—	10	1	—		
	5 „ (Great Dunmow) - -	16	—	—	10	1	—		
	6 „ - - -	16	—	—	10	1	—		
	7 „ (Freshwell) - - -	16	—	—	10	1	—		
	8 „ - - -	16	—	—	10	1	—	405	15
	9 „ (Hinckford) - - -	16	—	—	10	1	—		
	10 „ - - -	16	—	—	10	1	—		
	11 „ (Rochford) - - -	16	—	—	10	1	—		
	12 „ (Tendring) - - -	16	—	—	10	1	—		
	13 „ (Walden) - - -	16	—	—	10	1	—		
	14 „ (Witham) - - -	16	—	—	10	1	—		
	15 „ (Orsett) - - -	16	—	—	10	1	—		
	Colchester, Borough - - -	16	—	—	10	1	—	27	1
	Maldon, Borough - - - -	*16*	—	—	*10*	*1*	—	*27*	*1*

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
- - -	- - -	- - -	- - -	No return made. A set of weights and measures was officially verified for East Stonehouse on 6 Jan. 1827, and has not been since re-verified. The inspection is probably included with the Borough of Devonport.
22 Mar. 1858 -	22 Mar. 1858 -	- - -	- - -	Originally verified 1826, and re-verified 22 Mar. 1858.
About 6 years ago	About 6 years ago	- - -	- - -	Weights and measures re-verified 18 May 1860; weights since re-verified 23 Dec. 1867.
- - -	- - -	- - -	- - -	A set of weights and measures was officially verified for this manor on 19 Nov. 1860. In 1862 the property was transferred to the Ecclesiastical Commission, when the inspection of weights and measures under the Courts Leet was discontinued.
1836 - -	1836 - -	- - -	- - -	A full set was officially verified for this borough on 25 Feb. 1826, and has not been since re-verified. They are now in possession of the county inspector.
4 Aug. 1858; 1 set Dec. 1859; 1 set Dec. 1864, remainder in 1858.	1 set Dec. 1864; 1 set Dec. 1859, remainder in 1858.	Jan. 1865 -	Jan. 1865 -	One full set verified in 1826, the weights being re-verified 9 June 1868, the measures never re-verified. Three full sets issued in 1835, the weights re-verified in June 1868; one of the sets of measures verified 22 Sept. 1858, the other measures never re-verified. Four full sets and two short sets issued 19 Aug. 1858, one set of these weights being re-verified 29 Dec. 1864, five sets re-verified June 1868; one set of measures re-verified 29 Dec. 1864, the other measures not yet re-verified.
- - -	- - -	- - -	- - -	A full set was officially verified for the Borough of Bridport in 1835, and has not been since officially re-verified. The weights and measures are stated to be no longer in use, and the inspector is now transferred to the county.
23 Dec. 1867 -	23 Dec. 1867 -	- - -	- - -	A full set verified in 1835; not re-verified until 1867.
Apr. 1864 -	Apr. 1864 -	- - -	- - -	Originally verified in 1834, and re-verified 28 May 1864.
- - -	- - -	- - -	- - -	Originally verified 1826, and officially re-verified 23 Dec. 1867. Inspection transferred to the county.
- - -	- - -	- - -	- - -	No return made. Full set officially verified in 1825; the weights re-verified in 1844; the measures not re-verified.
- - -	- - -	- - -	- - -	No return made. Full set officially verified in 1826, and not since re-verified.
- - -	- - -	Mar. 1866 -	Mar. 1866 -	Six full sets verified in 1825, all re-verified in 1836; one full set being last re-verified on 22 Dec. 1857, two full sets on 22 Dec. 1859, and one set of the weights on 5 Feb. 1856, the other weights and measures not since re-verified. One full set verified in 1836, and two full sets verified in 1849 have not since been re-verified. A set of troys verified in 1859, was re-verified on 5 Feb. 1866. (See South Shields.)
- - -	- - -	Mar. 1866 -	Mar. 1860 -	
Jan. 1866 -	Mar. 1860 -	- - -	- - -	
- - -	- - -	Avoirdupois in 1863 by county standards	In 1863 by county standards.	All officially verified 24 Nov. 1846, and not since re-verified.
June 1866 -	- - -	- - -	- - -	Originally verified in 1825, last officially re-verified 11 Mar. 1866 (yard excepted).
July 1864 -	July 1864 -	- - -	- - -	Verified 5 July 1864. A full set, yard excepted, was, with the consent of the Controller of the Exchequer, the Clerk of the Peace for Durham, and the Town Clerk of South Shields transferred on 5 July 1864 from the County of Durham, for which county it had been originally issued, to the Borough of South Shields.
9 July 1866 -	July 1866 -	- - -	- - -	Originally verified 8 July 1866.
23 May 1859 -	7 Sept. 1859 -	23 May 1864 -	- - -	Two full sets originally verified in 1826, and last re-verified on 30 Sept. 1859 and 10 Oct. 1864 respectively. Six full sets originally verified in 1834; the weights belonging to these sets being last re-verified as follows:—three sets of weights in 1844, and three sets Oct. 1859; three sets of the measures were last re-verified in Oct. 1859, the other measures not yet re-verified. Two full sets were verified in 1835, and last re-verified in Oct. 1859. Four full sets verified in 1844, and one full set in 1845, were re-verified Oct. 1859 and May 1859 respectively. One full set was also verified 30 Oct. 1859, the weights of which were re-verified 20 Sept. 1867. Inspection transferred to the constabulary 1 Jan. 1864.
10 Oct. 1864 -	10 Oct. 1864 -	- - -	- - -	
11 Oct. 1858 -	11 Oct. 1858 -	14 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	26 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	21 Nov. 1864 -	- - -	
30 Sept. 1859 -	30 Sept. 1859 -	22 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	16 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	15 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	15 Nov. 1864 -	- - -	
30 Sept. 1859 -	30 Sept. 1859 -	22 Nov. 1864 -	- - -	
30 Sept. 1859 -	30 Sept. 1859 -	24 Nov. 1864 -	- - -	
10 Sept. 1859 -	10 Sept. 1859 -	14 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	21 Nov. 1864 -	- - -	
8 Oct. 1859 -	8 Oct. 1859 -	21 Nov. 1864 -	- - -	
10 Sept. 1859 -	10 Sept. 1859 -	23 Nov. 1864 -	- - -	
14 Feb. 1865 -	24 Nov. 1859 -	- - -	- - -	Originally verified in 1826; re-verified in 1837, 1845, and as stated.
- - -	- - -	- - -	- - -	No return made. The weights were verified in 1844, and the measures in 1844, and both were last re-verified on 2 Nov. 1861.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Essex—*cont.*	Harwich, Borough	16	—	—	10	1	—	27	1
	Havering-atte-Bower, Liberty of	16	—	—	10	1	—	27	1
	Saffron Walden, Borough	16	—	—	10	1	—	27	1
	Wetherfield, Manor	—	—	—	—	—	—	—	—
	Total for the County of Essex	320	—	—	200	20	—	540	20
Gloucestershire	8 Subdivisions of the County, viz.:—								
	Cheltenham	16	—	—	10	1	—	27	1
	Bristol	16	—	—	10	1	—	27	1
	Forest	15	—	—	8	1	—	24	1
	Gloucester	14	—	—	10	1	2	27	1
	Stow-in-the-Wold	16	—	—	10	1	—	27	1
	Cirencester	16	—	—	10	1	—	27	1
	Stroud	14	—	—	10	1	—	25	1
	Dursley	13	—	—	10	1	—	24	1
	Cirencester, Town and Borough	—	—	—	—	—	—	—	—
	Gloucester, City, County of a City, and Borough.	13	—	—	10	1	—	24	1
	Tewkesbury, Borough	17	—	—	10	1	—	28	1
	Wotton-under-Edge, Town	—	—	—	—	—	—	—	—
	Bisley, Manor Churchdown, Manor Cirencester, Seven Hundreds of Hempstede, Manor Presbury, Manor Stow-in-the-Wold, Manor Netherswell, Manor	—	—	—	—	—	—	—	—
	Total for the County of Gloucester	150	—	—	98	10	2	260	10
Hants	14 Subdivisions of the County	224	—	—	103	14	—	341	14
	Andover, Borough	16	—	—	10	1	—	27	1
	Basingstoke, Town	16	15	—	10	1	—	42	1
	Newport, Isle of Wight, Borough	—	—	—	—	—	—	—	—
	Portsmouth, Borough	16	15	—	10	1	2	44	1
	Ryde, Isle of Wight, Town	—	—	—	—	—	—	—	—
	Southampton, Borough	*16*	—	—	*5*	—	—	*21*	*1*
	Winchester, City	*16*	*15*	—	*10*	*1*	*1*	*43*	*2*
	Stockbridge, Borough and Manor	—	—	—	—	—	—	—	—
	Total for the County of Hants	304	45	—	148	18	3	518	20

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
3 Mar. 1863	3 Mar. 1863	-	-	Originally verified in 1827; re-verified on 22 June 1857, and the weights only in 1863. Both weights and measures have been since re-verified on 30 July 1868.
Oct. 1859	Oct. 1859	-	-	A complete set of weights and measures, including troy weights, was verified for the Havering Liberty on 26 Jan. 1835. The troy weights have never been re-verified. The other weights and the measures were re-verified, as stated, in 1859 *as a county set.* The weights have been since re-verified on 20 Sept. 1867.
27 July 1866	29 Oct. 1859	-	-	Full set verified in 1834, weights last re-verified 8 July 1866, the measures on 25 Nov. 1859.
-	-	-	-	A short set was verified for the Court Leet of the Manor of Wetherfield on 25 Sept. 1828. The bailiff of the manor reports that none are now used.
-	-	17 Sept. 1866	-	One full set verified in 1826, and two sets in 1829, all last re-verified in 1834. Two full sets verified in 1834, the weights of which were re-verified on 8 June 1855, 13 Mar. 1860, and 11 Feb. 1868 respectively; the measures not re-verified. One full set verified in 1849, and re-verified 14 Jan. 1860.
-	-	8 June 1867	-	
Jan. 1868	Not known	-	-	
-	-	Jan. 1868	Jan. 1868	
16 Mar. 1860	-	16 Oct. 1866	-	
-	-	1860	1860	
-	-	24 Jan. 1860	24 Jan. 1860	
-	-	20 Feb. 1867	Not known	
-	-	-	-	No return made. A set of weights and measures was officially verified for the Borough of Cirencester on 24 Mar. 1831, and has not been since re-verified. The inspection is probably now transferred to the county.
-	-	Jan. 1868	Jan. 1868	A full set was verified for the City of Gloucester on 10 Oct. 1826, and has not been since officially re-verified. It is stated that the inspection is intrusted to the police, and that the county and city police are amalgamated, the weights and measures for the city being re-verified with the county set.
9 July 1867	-	-	-	Full set issued in 1827, the measures last re-verified 24 Feb. 1860, the weights re-verified 17 June 1867.
-	-	-	-	No return made. A short set was officially verified for the Town of Wotton-under-Edge on 26 Nov. 1829, and has not been since re-verified.
-	-	-	-	In 1836 and 1837 eight sets of weights and measures (three of which were complete sets, including troy weights, were officially verified for these manorial Court Leets, and have not been since re-verified. It is stated that the courts for these manors have long ceased to be held, and the inspection is transferred to the county police.
July 1864	Oct. 1859	July 1864	Oct. 1859	The following sets have been verified for the County of Hants :—1 full set in 1825; 13 complete sets excepting bushel, peck, and half gallon, in 1835; four sets of weights in Feb. 1853, Feb. 1865, July 1857, May 1859, respectively; of which there have been re-verified one full set 17 Apr. 1868, one full set 14 Oct. 1859. Three sets of avoirdupois and troy weights issued in 1844, and two full sets, excepting bushel, peck, and half gallon, have been verified for the use of the County of Southampton. It is stated to be the practice of the local authorities in Hampshire annually to compare and adjust the whole of their local Standards by one set of Standards duly verified at the Exchequer or Board of Trade.
-	-	-	-	Weights and measures last officially re-verified 24 Feb. 1860, having been originally verified in 1826.
27 Jan. 1860	27 Jan. 1860	-	-	Originally verified in 1834, and re-verified in 1860.
-	-	-	-	A full set was officially verified for the Borough of Newport on 24 Dec. 1825, and has not been since re-verified. It is stated that the inspection is now transferred to the County of Hants.
3 Sept. 1866 (avoirdupois).	23 July 1861	-	-	One full set verified in 1826, never re-verified. A complete set verified in 1847, and re-verified 31 Aug. 1866, except the troy weights. One full set verified in 1849, the weights of which were re-verified 8 Aug. 1856, the measures not since re-verified.
-	-	-	-	No return made. Full set officially verified for the Town of Ryde on 18 June 1831, and not since re-verified.
-	-	-	-	No return made. Full set officially verified for the Corporation of Southampton on 11 Nov. 1825, and not since re-verified. A further set of weights and smaller measures of capacity verified 10 July 1866.
-	-	-	-	No return made. One full set issued in 1826, one set of troy in 1834, and one set of avoirdupois in 1847. Avoirdupois weights last officially re-verified 31 Aug. 1866; the troy weights and measures on 22 Dec. 1859.
-	-	-	-	No return made. A set officially verified for the Borough of Stockbridge on 23 Mar. 1826, and not since re-verified.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Herefordshire -	9 Subdivisions of the County, viz.:—								
	Abbey Dore - - - -								
	Bromyard - - - -								
	Harewood End - - -								
	Hereford - - - -								
	Kington - - - -	44	—	—	20	3	—	67	3
	Ledbury - - - -								
	Leominster and Wigmore - -								
	Ross - - - - -								
	Weobley and Bredwardine - -								
	Hereford, City and Borough - -	16	—	—	10	1	—	27	1
	Leominster, Borough - - -	16	—	—	10	1	—	27	1
	Total for the County of Hereford -	76	—	—	40	5	—	121	5
Hertfordshire -	- - - - - - -	96	—	—	60	6	—	162	6
	Bishop Stortford, Town - - -	—	—	—	—	—	—	—	—
	Hemel Hempstead, Town - - -	—	—	—	—	—	—	—	—
	Hertford, Borough - - -	16	—	—	10	1	—	27	1
	Hitchin, Town - - - -	—	—	—	—	—	—	—	—
	St. Alban's, Borough - - -	16	—	—	10	1	—	27	1
	Cheshunt, Manor - - - -	16	—	—	10	1	—	27	1
	Total for the County of Herts -	144	—	—	90	9	—	243	9
Huntingdonshire -	4 Subdivisions of the County, viz.:—								
	Leightonstone, including Borough of Huntingdon - - -								
	Hurstingstone - - -	74	—	—	40	5	—	119	5
	Toseland - - - -								
	Norman Cross - - -								
	Huntingdon, Borough - - -	—	—	—	—	—	—	—	—
	Total for the County of Hunts -	74	—	—	40	5	—	119	5
Kent - - - -	17 Subdivisions of the County, viz.:—								
	Ashford - - - -	16	—	—	10	1	—		
	Aylesford, North (Rochester) - -	16	—	—	10	1	—		
	Aylesford, Upper South - -	16	—	—	10	1	—		
	Aylesford, Lower South - -	16	—	—	10	1	—		
	Bearstead - - - -	16	—	—	10	1	—		
	Blackheath - - - -	16	—	—	10	1	—		
	Bromley - - - -	16	—	—	10	1	—		
	Cranbrook, Scray - - -	16	—	—	10	1	—		
	Dartford - - - -	16	—	—	10	1	—	458	17
	Faversham - - - -	16	—	—	10	1	—		
	Home Division of St. Augustine -	16	—	—	10	1	—		
	Isle of Sheppey - - -	16	—	—	10	1	—		
	Ramsgate (East Kent, Division of) -	16	—	—	10	1	—		
	Sevenoaks - - - -	16	—	—	10	1	—		
	Shepway, Upper Division - -	16	—	—	10	1	—		
	Tunbridge Wells - - -	16	—	—	10	1	—		
	Wingham - - - -	16	—	—	10	1	—		
	Bexley, Parish - - - -	—	—	—	—	—	—	—	—
	Canterbury, City - - - -	16	—	—	10	1	—	27	1
	Chatham, Town - - - -	—	—	—	—	—	—	—	—
	Dartford, Parish - - - -	—	—	—	—	—	—	—	—
	Deal, Town - - - -	14	—	—	9	1	—	24	1
	Dover, Borough - - - -	*48*	*45*	—	*30*	*3*	—	*126*	*2*
	Faversham, Borough - - -	16	—	—	10	1	—	27	1

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
21 Apr. 1863	-	23 May 1863	-	One full set verified in 1825, and two full sets in 1858. One short set of measures, bushel to half-gallon, last officially re-verified 24 Nov. 1859; smaller measures 25 Mar. 1858. The three full sets have been since officially re-verified on 1 May 1868.
23 Feb. 1867	23 Feb. 1867	-	-	Originally verified in 1835, and re-verified 23 Feb. 1867.
17 Dec. 1867	-	-	-	A full set officially verified for the Borough of Leominster on 16 Feb. 1826, and re-verified in 1847, and again on 17 Dec. 1867.
1866	1866	1866	1866	Five full sets only have been officially verified for the County of Herts. It would appear that one set must have been transferred from a borough. At the date of the return one set of weights had been last officially re-verified on 21 Nov. 1865. A set of weights has been since re-verified on 4 Mar. 1868. No set of measures has been officially verified since 3 Aug. 1858.
-	-	-	-	No return made. A full set was officially re-verified for Bishop Stortford on 21 Jan. 1836, and has not been since re-verified.
-	-	-	-	No return made. A set of weights and measures officially verified for Hemel Hempstead 4 Mar. 1826, and not since re-verified.
-	-	-	-	Originally verified in 1825; re-verified 27 Jan. 1860, and since 28 Mar. 1868.
-	-	-	-	No return made. A full set officially verified for the Town of Hitchen on 1 April 1826, and not since re-verified.
27 June 1863	27 June 1863	-	-	A full set originally verified in 1826, and not re-verified. A new set verified in 1863, and not since re-verified.
24 May 1856	2 May 1826	-	-	A full set officially verified for the Manor of Cheshunt on 2 May 1826. The weights were re-verified on 24 May 1856; the measures not re-verified.
4 Mar. 1867	4 Mar. 1867	-	-	One full set verified in 1826. The measures re-verified on 25 Mar. 1858; the weights 31 Aug. 1866. Two short sets verified in 1853, one set of the measures and two sets of the weights being re-verified 4 Mar. 1867.
-	-	-	-	A full set was officially verified for the Borough of Huntingdon in 1834. The inspection has been since transferred to the county.
28 July 1859	-	-	-	The following Standards have been verified, and re-verified, for the several districts of Kent. Three full sets verified in 1826, one in 1827, one in 1831, twelve in 1835, one in 1858, three on 17 May 1864; of which there have been last re-verified:—One *full* set re-verified 21 Dec. 1849, one 28 July 1859, one 27 Jan. 1864, one 1 May 1865, one 31 Mar. 1866, one 2 Sept. 1866, two 4 Mar. 1867, one 17 Dec. 1867, one 23 Dec. 1867, one 17 Feb. 1868, one 28 Jan. 1868, one 14 May 1868. Also one set of *weights only* re-verified 15 Jan. 1858, one in 1862, one 24 July 1864, one in 1856, one 6 Nov. 1865, one 23 Jan. 1868, one 1 May 1868. A complete set was originally issued in 1835 for *Minster in Sheppey*, the troy weights of which was re-verified for *County of Kent* 4 Mar. 1867.
7 Nov. 1865	-	-	-	
13 May 1855	13 May 1855	9 Mar. 1864	-	
1859	-	-	-	
1 May 1865	1 May 1865	-	-	
27 July 1867	3 Aug. 1867	-	-	
May 1867	1861	-	-	
28 May 1860	-	-	-	
24 Sept. 1866	-	-	-	
4 Mar. 1867	4 Mar. 1867	-	-	
Feb. 1865	1860	-	-	
4 Mar. 1867	4 Mar. 1867	-	-	
30 Sept. 1867	-	1862	1862	
21 May 1860	June 1862	-	-	
21 Mar. 1866	Feb. 1866	-	-	
27 Jan. 1864	Nov. 1863	-	-	
17 May 1867	-	-	-	
-	-	-	-	An incomplete set verified in 1830, and not since re-verified. Inspection transferred to county.
17 May 1867	17 May 1867	-	-	Originally verified in 1825; re-verified in 1860, and again in 1867.
-	-	-	-	No return made. A set was verified for Chatham in 1826 for the use of the High Constable, and has not been since re-verified.
-	-	-	-	No return made. A set was verified in 1828 and in 1833 for the Parish of Dartford, and for the custody and use of the ale conners. They have not been since re-verified, and the inspection is probably transferred to the county.
Not known	Not known	-	-	Officially verified for the Town of Deal on 21 Feb. 1826, and not since re-verified.
-	-	-	-	No return made. The inspection of weights and measures is incorporated with that of Margate, the same inspector being appointed for both places. The three complete sets of weights were last officially re-verified on 19 Feb. 1868; one set of measures on 7 July 1868, and two sets on 23 Aug. 1860.
7 May 1866	15 May 1861	-	-	Originally verified in 1826; re-verified as stated.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of of Standards.	Number of Sets and Indentures.
Kent—*cont.*	Folkestone, Borough - - -	16	—	—	10	1	—	27	1
	Gravesend and Milton, Borough - -	16	—	—	10	1	—	27	1
	Hythe, Borough - - - -	15	10	—	10	1	—	36	1
	Lydd, Borough - - - -	16	—	—	9	1	—	26	1
	Maidstone, Borough - - -	16	—	—	10	1	—	27	1
	Queenboro' Borough - - -	18	9	—	10	1	—	38	1
	Ramsgate, Town - - - -	16	—	—	10	1	—	27	1
	Rochester, City - - - -	16	—	—	10	1	*1*	28	1
	Romney, New, Borough - - -	15	—	—	9	1	—	25	1
	Sandwich, Borough - - -	15	10	—	10	2	—	37	2
	Sheppey, Parish of Minster, in - -	—	—	—	—	—	—	—	—
	Tenterden, Borough - - -	16	—	—	10	1	—	27	1
	Woolwich, Parish of Saint Mary - -	*16*	—	—	*8*	—	—	*22*	*1*
	Brasted, Manor - - - -	12	—	—	5	—	—	17	1
	Lewisham, Manor - - -	16	—	—	5	—	—	21	1
	Swancombe, Manor - - -	—	—	—	—	—	—	—	—
	Total for the County of Kent -	584	74	—	355	35	*1*	*1,049*	37
Lancashire -	17 Subdivisions of the County, viz.:—								
	Ashton-under-Lyne - - -	29	—	—	10	1	—		
	Bacup - - - - -	16	—	—	10	1	—		
	Blackburn, Higher - - -	33	—	—	19	2	—		
	Blackburn, Lower - - -	16	—	—	10	1	—		
	Bolton - - - -	29	—	—	10	1	—		
	Bury - - - - -	29	—	—	10	1	—		
	Garstang - - - -	29	—	—	10	1	—		
	Kirkdale - - - -	23	—	—	15	1	—		
	Kirkham - - - -	16	—	—	10	1	—	644	27
	Leyland - - - -	16	—	—	10	1	—		
	Lonsdale, North - - -	16	—	—	10	1	—		
	Lonsdale, South - - -	16	—	—	10	1	—		
	Manchester - - - -	32	—	—	20	3	—		
	Ormskirk - - - -	31	—	—	20	2	—		
	Prescot - - - -	16	—	—	10	1	—		
	Rochdale - - - -	29	—	—	10	1	—		
	Warrington - - - -	32	—	—	20	2	—		
	Ashton-under-Lyne, Borough - -	26	—	—	8	1	*1*	36	1
	Accrington, Town - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Blackburn, Borough - - -	29	—	—	15	2	*1*	47	1
	Bolton, Borough - - - -	16	—	—	10	1	1	28	1
	Clitheroe, Borough - - -	13	—	—	10	1	—	24	1
	Lancaster, Borough - - -	*16*	—	—	*10*	*1*	*1*	*28*	*1*
	Liverpool, Borough - - -	64	30	62	20	2	*4	182	4

* And one cubic foot transferrer.

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
1 Feb. 1859	1 Feb. 1859	-	-	Originally verified in 1825; weights and measures since re-verified on 4 Nov. 1867.
20 Sept. 1864	12 Nov. 1859	-	-	Originally verified in 1826 for use of Gravesend and Milton.
15 June 1861	15 June 1861	-	-	One complete set verified in 1826; re-verified in 1835 and 1861, excepting the troy weights, not since re-verified.
Not known	Not known	-	-	Originally re-verified in 1825, and not since re-verified.
20 May 1867	19 Mar. 1861	-	-	Originally verified in 1826.
1826	1826	-	-	One full set without troy weights verified in 1826, and an additional complete set, including troy weights, on 24 Jan. 1835; not since re-verified.
-	-	-	-	A full set officially verified in 1835, and not since re-verified.
8 Feb. 1860 Feb. 1865	8 Feb. 1860	-	-	The 13 larger avoirdupois weights last officially re-verified 27 Feb. 1866; the other weights and measures, 8 Feb. 1860.
Not known	Not known	-	-	Original verification, 18 Jan. 1826; never re-verified.
Awaiting re-verification.		-	-	A full set was officially verified for the Port and Town of Sandwich and its Liberties in 1826. In 1835, under a second indenture, an additional set of avoirdupois weights of 1 lb. and under, and a set of troy weights, were also verified. On 17 Apr. 1868 a full set, without troy weights, was re-verified, the smaller weights being new, as well as the bushel and peck. A Winchester bushel, officially verified in 1795, was also sent for re-verification, and an old yard combined with the ell. They were rejected, being illegal measures. The Winchester bushel was about $1\frac{3}{4}$ pints less than the Imperial Standard bushel.
-	-	-	-	A full set verified in 1826, and a second full set in 1835. Both sets since re-verified 4 March 1867, the inspection and Standards being transferred to the county.
Aug. 1865	Aug. 1865	-	-	They were officially re-verified 11 Sept. 1865; originally verified in 1826.
-	-	-	-	No return made. Last officially re-verified 8 May 1863; originally issued in 1843 for Commissioners of St. Mary's, Woolwich.
-	-	June 1862	June 1862	Officially verified 9 Aug. 1826, and never re-verified. They are stated to have been adjusted by the county Standards at Sevenoaks in June 1862, and not to have been used for the last four years, 2 Apr. 1867, the county Standards having superseded them.
-	-	-	-	Originally verified in 1826; re-verified 24 Sept. 1858. Inspection formerly exercised by officers appointed by the Court Leet, and called *ale conners*. Their duties now obsolete and at an end, and inspection transferred to the county.
-	-	-	-	No return made. A set verified 12 July 1827 for the Lord of the Manor, and not since re-verified.
Feb. and May 1865	27 June 1843	-	15 Dec. 1859	
24 Aug. 1861	24 Aug. 1861	30 Nov. 1864	30 Nov. 1864	
10 Oct. 1864	10 Oct. 1864	-	-	
26 July 1853	-	10 Oct. 1864	20 Feb. 1860	
14 Feb. and 12 Mar. 1865.	-	Jan. 1865	22 Dec. 1859	
21 Feb. 1865	-	Jan. 1865	22 Dec. 1859	Seven sets of weights and three sets of measures have since been re-verified 23 Dec. 1867. The history of the Standards verified for Lancashire could not be given with certainty, owing to the irregular manner in which the indentures were formerly numbered by the Exchequer officers.
11 Oct. 1858	26 Jan. 1860	30 Nov. 1864	-	
Full set, 26 May 1862	13 July 1848	-	14 Mar. 1862	
10 Jan. 1865	29 Nov. 1856	30 Nov. 1864	30 Nov. 1864	
18 Apr. 1854	22 May 1849	30 Nov. 1864	20 Feb. 1860	
May 1867, Oct. 1861	June 1852	Jan. 1867	Jan. 1867	
19 Dec. 1866	19 Dec. 1866	-	-	
14 Feb. 1865	-	9 Dec. 1864	9 Dec. 1864	
Mar. 1857, Ap. 1863	-	1 set, Mar. 1862	-	
26 July 1864	-	-	14 Mar. 1862	
10 Oct. 1864	10 Oct. 1864	18 July 1860	18 July 1860	
13 Nov. 1862	28 Feb. 1860	-	-	
12 Apr. 1862	12 Aug. 1867	-	-	One short set verified 5 June 1830, re-verified 12 April 1862, most of the weights being new, and again on 18 Dec. 1867.
-	-	-	-	No return. Full set verified in 1826, and not since re-verified.
-	-	-	-	A full set verified 3 Mar. 1842, and not since re-verified; second set of weights verified 26 Sept. 1864; re-verified 7 Oct. 1868.
Oct. 1865	Capacity, Length, 1860; Gas, 1861.	-	-	One full set verified in 1825, re-verified in 1842 and 1854, and the weights only in 1860 and on 13 Oct. 1865.
1835	-	-	-	Originally verified in 1834, and not since re-verified.
1827	-	-	-	No return. One full set verified in 1827, and not since re-verified.
Avoirdupois. 1 set, 27 July 1865. 2 sets, 19 Dec. 1866. 1 set now awaiting re-verification. 1 spare set kept in office. Troy. 1 set, 19 Dec. 1866. 1 spare set kept in office. Bullion. 1 set, 1860. 1 set awaiting re-verification.	Dry, 15 Aug. 1859. Liq., 8 Mar. 1866. Length. Aug. 15, 1859.	-	-	The following Standards have been originally verified, and re-verified for Liverpool. One full set verified in 1825, one in 1834, two complete sets in 1835, one set of troy in 1835, one set of troy and a short set of measures in 1837, one set of avoirdupois in 1852, one set of avoirdupois 12 Aug. 1868, and a set of measures from peck to half gill 11 Mar. 1866. Most of the Standard weights issued in 1825, 1834, 1835, have been re-verified *annually*. The dates of the last re-verifications are, one set of avoirdupois and troy weights 9 Dec. 1866, one set of troy Oct. 1860, three sets of weights 1868, two sets of measures in 1848, one set of measures in 1853, and one set of measures in 1859.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Lancashire—*cont.*									
	Manchester, Borough	61	15	62	25	2	4	169	4
	Oldham, Borough	32	—	—	8	1	4	45	3
	Preston, Borough	16	—	—	10	1	2	29	1
	Salford, Borough	30	15	—	10	1	2	58	3
	Staleybridge, Borough	16	—	—	10	1	1	28	1
	Warrington, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Wigan, Borough	16	—	—	10	1	*1*	28	1
	Bury Market, Borough	16	—	—	10	1	—	27	1
	Manchester, Manor	—	—	—	—	—	—	—	—
	Rochdale, Manor	—	—	—	—	—	—	—	—
	Total for the County of Lancaster	791	60	124	390	40	22	1,427	52
Leicestershire	7 Subdivisions of the County, viz.:—								
	1 District	32	—	—	20	2	—	54	2
	2 District	16	—	—	10	1	—	27	1
	3 District	16	—	—	10	1	—	27	1
	4 District	16	—	—	10	1	—	27	1
	5 District	16	—	—	10	1	—	27	1
	6 District	16	—	—	10	1	—	27	1
	7 District	16	—	—	10	1	—	27	1
	Leicester, Borough	29	—	—	10	1	—	40	2
	Total for the County of Leicester	157	—	—	90	9	—	256	10
Lincolnshire	The County divided into Three Ridings or Parts:—								
	I. Parts of Lindsey:								
	1. Spilsby								
	2. Louth								
	3. Brigg								
	4. Horncastle								
	5. Market Rasen	128	—	—	48	8	—	184	8
	6 Lincoln, West								
	7. Winterton								
	8. Gainsborough								
	II. Parts of Holland:								
	Boston	32	—	—	14	2	—	48	2
	Spalding								
	Holland Elloe	16	—	—	10	1	—	27	1
	Kirton and Kirbeck	16	—	—	10	1	—	27	1
	III. Parts of Kesteven:								
	Bourne	16	—	—	6	1	—	23	1
	Sleaford	16	—	—	10	1	—	27	1
	Lincoln, South	16	—	—	10	1	—	27	1
	Grantham	16	—	—	10	1	—	27	1
	Boston, Borough	16	—	—	10	1	—	27	1
	Grantham, Borough	15	—	—	10	1	—	26	1
	Great Grimsby, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Lincoln, City and County of City	32	—	—	20	3	2	57	3
	Louth, Borough	16	—	—	10	1	*1*	28	1

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
Avoirdupois. 1 full set, 6 Oct. 1863 1 full set, 13 Oct. 1865 1 full set, 24 June 1867 1 short set 30 Jan. 1860 Troy—Bullion. 19 Dec. 1866.	1 full set, 20 Dec. 1861. 1 short set, 13 Dec. 1858.	- - -	- - -	The following have been verified and re-verified for Manchester. One short set verified in 1825, one full set in 1844, one set of troy in 1851, one set of avoirdupois in 1844, one short set in 1845, and one full set (formerly the property of the Manor of Manchester) in 1846; of which there have been re-verified one set of measures 20 May 1859, one set of measures 21 Dec. 1861, one set of weights 13 Oct. 1865, one set of troy 9 Dec. 1866, one set of avoirdupois 24 July 1867, and two sets of weights 18 April 1868. These are the dates only of the last re-verifications; most of these Standards being officially re-verified every other year.
1 set, 2 Dec. 1865 1 set, 22 Dec. 1863	Not stated -	- - -	- - -	A set of weights verified in 1836; re-verified in 1863. Measures originally verified 8 June 1843, and not re-verified since. A new set of weights verified 28 Nov. 1865.
27 July 1865 -	12 Mar. 1866 -	- - -	- - -	One full set verified in 1826; re-verified as stated.
30 May 1864 -	- - -	- - -	- - -	One full set originally verified 29 June 1860; a set of avoirdupois verified 30 May 1864, and a set of troy 4 Oct. 1864, none of which have yet been re-verified.
Jan. 1864 -	Not stated -	- - -	- - -	The weights and measures originally verified 26 Nov. 1863, and the weights since re-verified 20 Aug. 1868.
- - -	- - -	- - -	- - -	No return made. A full set verified in 1854, and since re-verified 28 Jan. 1868.
- - -	- - -	- - -	- - -	A complete set, *including troy weights*, was verified in 1835, and not since re-verified.
22 Mar. 1866 -	22 Mar. 1866 -	- - -	- - -	A full set verified in 1840; re-verified as stated.
- - -	- - -	- - -	- - -	A full set verified for the manor in 1826. Inspection transferred to Borough of Manchester previously to 1846.
- - -	- - -	- - -	- - -	No return made. A full set verified for the Manor of Rochdale in 1826, and not since re-verified.
18 Sept. 1857, 20 Nov. 1857.	12 Sept. 1857, 20 Nov. 1857.	5 Nov. 1862 -	- - -	The following Standards have been verified and re-verified for Leicestershire. One full set verified in 1826, four sets in 1857, two in 1858, and one in 1860; of which there have been last re-verified, three full sets 23 Dec. 1867, one full set in Oct. 1867, one set of weights 18 Jan. 1861, and two sets of weights Oct. 1867, leaving one set not re-verified.
31 Jan. 1866 -	10 June 1858 -	- - -	- - -	
2 June 1865 -	24 May 1860 -	- - -	- - -	
20 Nov. 1857 -	20 Nov. 1857 -	- - -	- - -	
,, -	,, -	- - -	- - -	
10 June 1858 -	10 June 1858 -	22 Feb. 1864 -	22 Feb. 1864 -	
18 Jan. 1861 -	20 Nov. 1857 -	5 Nov. 1862 -	5 Nov. 1862 -	
Jan. 1865 -	- - -	- - -	- - -	One full set verified in 1826, the weights belonging to which were last re-verified 6 Jan. 1865; the measures have never been re-verified.
- - -	- - -	23 Nov. 1864 -	1864–6 -	A full set issued for the Lindsey Division in 1825; re-verified in 1837, the weights in 1846, 1849, and 1859, and weights and measures on 7 June 1864. Other sets verified and re-verified from time to time.
- - -	- - -	,, -	,, -	
1 July 1864 -	1864 -	- - -	- - -	
- - -	- - -	17 Aug. 1864 -	1864–6 -	
7 June 1864 -	7 June 1864 -	- - -	- - -	
- - -	- - -	17 Aug. 1864 -	1864–6 -	
23 Dec. 1863 -	23 Dec. 1863 -	- - -	- - -	
- - -	- - -	26 April 1866 -	1884–6 -	
25 Sept. 1863 -	25 Sept. 1865 -	- - -	- - -	A full set verified for the Parts of Holland in 1825; re-verified in 1847; a second set in 1834, and others since.
19 May 1864 -	19 May 1864 -	- - -	- - -	
June 1864 -	- - -	- - -	- - -	
Sept. 1865 -	- - -	- - -	- - -	
13 Oct. 1865 -	13 Oct. 1865 -	- - -	- - -	Two full sets verified for Kesteven in 1826, and since re-verified.
,, -	,, -	- - -	- - -	
,, -	,, -	- - -	- - -	The four sets last re-verified as stated.
,, -	,, -	- - -	- - -	
28 Mar. 1867 -	28 Mar. 1867 -	- - -	- - -	A full set verified in 1826, and re-verified in 1836, when a set of troy weights was also verified. The troy weights have not been since re-verified. The original full set was re-verified in 1850, and again in 1867.
1856 - -	- - -	- - -	- - -	Originally verified in 1825; the weights re-verified in 1851 and 1858, and the full set re-verified on 17 Dec. 1867.
- - -	- - -	- - -	- - -	No return made. A full set officially verified in 1826, and re-verified in 1843 and on 11 April 1860; the weights have been since re-verified on 18 April 1868.
1 set, 18 Feb. 1864 ,, 28 Mar. 1866	- - -	- - -	- - -	One full set and one short set issued for the *Bail* of Lincoln in 1826, the weights of which were re-verified 28 Mar. 1866. One full set issued in 1826 for the *City and County* of Lincoln, and last re-verified 12 Feb. 1864.
10 Jan. 1865 -	10 Jan. 1865 -	- - -	- - -	Originally verified in 1834; re-verified in 1858, and again in 1865.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Lincolnshire—*cont.*	Spalding, Borough	—	—	—	—	—	—	—	—
	Stamford, Borough	16	—	—	10	1	—	27	1
	Alford, Manor	—	—	—	—	—	—	—	—
	Total for the County of Lincoln	367	—	—	188	24	3	582	24
Middlesex	4 Subdivisions of the County, viz.:								
	1. Tower Hamlets	16	—	—	10	1	—	27	1
	2. Clerkenwell	16	15	—	10	1	—	42	1
	3. Bloomsbury	16	15	—	10	1	—	42	1
	4. Brentford	16	—	—	10	1	—	27	1
	Chelsea, Parish of St. Luke	—	—	—	—	—	—	—	—
	Islington, Parish of St. Mary	*11*	—	—	*7*	—	—	*18*	*1*
	Kensington, Parish of St. Mary Abbotts	—	—	—	—	—	—	—	—
	London, City	48	30	*31*	27	4	14	154	4
	Founder's Company	*16*	*15*	—	—	—	—	*31*	*1*
	Metropolitan Board of Works	—	—	—	—	—	*44	44	—
	Goldsmiths' Company	—	—	—	—	—	—	—	—
	Paddington, Parish	16	—	—	10	1	—	27	1
	St. Marylebone, Parish	32	—	—	15	1	—	48	2
	St. Pancras, Parish	28	—	—	19	2	—	49	2
	Tower of London, Liberty	16	—	—	10	1	—	27	1
	Westminster, City and Liberty	30	15	—	17	1	—	63	2
	St. John of Jerusalem, Manor	—	—	—	—	—	—	—	—
	Savoy, Manor	—	—	—	—	—	—	—	—
	The Rolls, Liberty of	—	—	—	—	—	—	—	—
	Heston, Parish (Manor of Isleworth)	—	—	—	—	—	—	—	—
	Isleworth, Parish (Manor of Isleworth)	—	—	—	—	—	—	—	—
	Twickenham, Parish (Manor of Isleworth)	—	—	—	—	—	—	—	—
	Total for the County of Middlesex	261	90	31	145	14	58	599	18
Monmouthshire	County of Monmouth	16	—	—	10	1	—	27	1
	Monmouth, Borough	*16*	—	—	*9*	*1*	—	*26*	*1*
	Newport, Borough	32	—	—	10	1	2	45	2
	Total for the County of Monmouth	64	—	—	29	3	2	98	4

* Not including a cubic foot bottle.

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
- - -	- - -	- - -	- - -	A full set verified in 1839; the weights re-verified in 1858 and 1864, the measures in 1859. Inspection transferred to county and included in Holland Elloe.
July 1866 -	- - -	- - -	- - -	Full set verified in 1826; re-verified 21 Feb. 1860.
- - -	- - -	- - -	- - -	A set of weights and measures officially verified 23 Dec. 1850, for the Lord of the Manor of Alford; re-verified 21 Feb. 1860. Inspection since transferred to County Police.
July 1865 -	July 1865 -	- - -	- - -	The following Standards have been verified and re-verified for Middlesex:—Quart to half gill in 1825, one full set and one complete set in 1826, six complete sets and three full sets in 1834, five full sets in 1835, of which three have been re-verified. Four full sets re-verified *triennially*, the last re-verification of four complete sets being respectively on 5 Aug., 27 Aug., 9 Sept., and 13 Oct. 1868. Two full sets of troy weights were re-verified in 1834 and 1847 respectively, and bullion weights for each District were verified in 1869.
1 Aug. 1865 -	1 Aug. 1865 -	- - -	- - -	
24 Aug. 1865 -	24 Aug. 1865 -	- - -	- - -	
Aug. 1865 -	Aug. 1865 -	- - -	- - -	
- - -	- - -	- - -	- - -	A set verified for the Parish of Chelsea in 1836, and re-verified 1839. Inspection since transferred to county.
- - -	- - -	- - -	- - -	No return made. The 11 weights (14 lbs. to 4 dr. inclusive), seven measures of capacity (gallon to half gill inclusive), and the yard were originally verified in 1830, and re-verified in 1835; the yard not re-verified since 1835, the others in 1852, and the weights again in 1855, and both on 25 June 1862. Weights since re-verified on 8 Oct. 1867.
- - -	- - -	- - -	- - -	A full set verified for Kensington in 1826, and re-verified from time to time until 1860. Inspection since transferred to county.
Avoirdupois.				The three sets of avoirdupois weights and measures of the City of London were originally verified in 1825, have been frequently re-verified, both before and after the passing of the Act of 1859. The set stated as re-verified in Oct. 1865 has been since re-verified on 3 April 1868. The other two sets were last respectively re-verified on 13 Oct. 1865 and 14 Aug. 1866. The two sets of troy weights were originally verified on 6 Nov. 1852, and were not re-verified up to the date of the return; but one set has been since re-verified on 17 April and the other on 4 Sept. 1868. Only three yards have been re-verified. Another standard yard verified by Captain Kater in 1824 was sent to the City of London in pursuance of s. xi. of the Act 5 Geo. 4. c. 74., and has not been since re-verified.
1 set, Oct. 1865	Cap. and Length, 1 set, Oct. 1865			
2 sets, Sept. 1866	2 sets, Sept. 1866	- - -	- - -	
Troy.				
1 set, 1852 -	Gas 1860 & 1861			
1 set, Sept. 1866				
20 Feb. 1866 -	- - -	- - -	- - -	No return made. A set of avoirdupois weights verified in 1825, and a set of troy weights verified in 1839, both for the use of the Founders' Company; they were re-verified August 10th, 1853, and in 1866.
- - -	- - -	- - -	- - -	No return made. By the Act 24 & 25 Vict. c. 79., passed in 1861, for amending the Metropolis Gas Act, 1860, all duties and powers imposed upon justices of the peace under the Sale of Gas Act, 1859, so far as relates to the metropolis, exclusive of the City of London, are transferred to the Metropolitan Board of Works, under whose authority the 45 local gas measuring Standards have been verified for the several district inspectors of gas meters.
- - -	- - -	- - -	- - -	A set of Bullion Standards was verified for the Goldsmiths' Company on 17th January 1866, but the Company does not compare any weights with their Standards.
May 1861 -	May 1861 -	- - -	- - -	A full set verified in 1826, and re-verified in 1861; since re-verified, 7 July 1868.
23 Dec. 1867 -	23 Dec. 1867 -	- - -	- - -	One full set verified in 1825, and one short set verified in 1836; both re-verified 23 Dec. 1867. A set of troy weights was verified in 1845, but has not since been re-verified.
Not known -	Not known -	- - -	- - -	The two sets originally verified respectively in 1825 and 1849, were last re-verified 27 Aug. 1865.
Aug. 1863 -	Aug. 1863 -	- - -	- - -	Originally verified in 1826; last re-verified 14 Dec. 1863.
- - -	- - -	- - -	- - -	The two full sets verified in 1825 and 1826, and the troy weights verified in 1845, were last re-verified 23 July 1868; another full set verified in 1827, has not been re-verified since 1837.
- - -	- - -	- - -	- - -	Sets of weights and measures were verified for each of these places in 1825, 1826, and 1828. The inspection is now included in the county.
- - -	- - -	- - -	- - -	
- - -	- - -	- - -	- - -	
- - -	- - -	- - -	- - -	A set of weights and measures originally issued in 1846, and last re-verified for each of these three parishes in 1853. The Bailiff of the Manor states that they have not been used for many years. Inspection transferred to county.
- - -	- - -	- - -	- - -	
- - -	- - -	- - -	- - -	
June 1862 -	- - -	- - -	- - -	Originally verified in 1825; the weights were re-verified in April 1862, and since re-verified on 18 April 1868. The measures last re-verified 26 Jan. 1860.
- - -	- - -	- - -	- - -	No return sent. Originally verified in 1826. The weights last re-verified 23 Dec. 1867, and measures 18 Jan. 1862.
23 Feb. 1867 -	24 Oct. 1867 -	- - -	- - -	One full set verified in 1835, and re-verified in 1867. An additional set of avoirdupois weights verified 23 Feb. 1867.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Norfolk	15 Subdivisions of the County, viz.:—								
	Aylesham and N. Walsham	16	—	—	10	1	—	27	
	Dereham and Wymondham	16	—	—	10	1	—	27	
	Loddon	16	—	—	10	1	—	27	
	Norwich and Acle	16	—	—	10	1	—	27	8
	Pulham and Harling	16	—	—	10	1	—	27	
	Swaffham and Docking	16	—	—	10	1	—	27	
	Torrington and Downham	16	—	—	10	1	—	27	
	Walsingham and Holt	16	—	—	10	1	—	27	
	Buckenham, New, Borough	13	—	—	9	1	—	23	1
	King's Lynn, Borough	*32*	—	—	*10*	*1*	*2*	*45*	*2*
	Norwich, City, and County of City	16	15	—	10	1	—	42	1
		29	15	—	10	1	—	55	2
	Thetford, Borough	13	—	—	10	1	—	24	1
	Walsham, North, Parish	—	—	—	—	—	—	—	—
	Yarmouth, Borough	16	—	—	10	1	1	28	1
	Total for the County of Norfolk	247	30	—	139	14	3	433	16
Northampton	County of Northampton	112	—	—	70	7	—	189	7
	Daventry, Borough	—	—	—	—	—	—	—	—
	Higham Ferrers, Borough	—	—	—	—	—	—	—	—
	Northampton, Borough	16	—	—	10	1	3	30	1
	Peterborough, Liberty of	16	—	—	10	1	—	27	1
	Total for the County of Northampton	144	—	—	90	9	3	246	9
Northumberland	6 Subdivisions of the County, viz.:—								
	Castleward, East	17	15	—	10	1	—		
	Castleward, West	17	15	—	10	1	—		
	Coquetdale, Ward, &c.	16	15	—	10	1	—		
	Morpeth, Ward, &c.	17	15	—	10	1	—	251	6
	Norham, Ward, &c.	16	15	—	10	1	—		
	Tinedale, Ward, &c.	17	10	—	10	1	—		
	Berwick-on-Tweed, County of Borough and Town.	23	—	—	9	1	—	33	1
	Newcastle-on-Town, Town and County	16	12	—	10	1	—	39	1
	Tynemouth, Borough	16	—	—	10	1	—	27	1
	Alnwick, Manor and Borough	12	—	—	5	—	—	17	1
	Corbridge, Prudhoe, and Newburn, Manor and Barony.	13	—	—	5	—	—	18	1
	Hexham, Manor	—	—	—	—	—	—	—	—
	Rothbury, Manor	10	—	—	5	1	—	16	1
	Warkworth, &c., Manor and Borough	11	—	—	5	—	—	16	1
	Total for County of Northumberland	201	97	—	109	10	—	417	13

* *Soke* appears to be a modern corruption of the Saxon *soc*, which sometimes signified the privilege of executing laws, at other times the Shrewsbury would seem to have

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
26 April 1867		30 Mar. 1867	30 Mar. 1867	The following Standards have been verified and re-verified for Norfolk:—One full set verified in 1826, the weights of which were re-verified in 1857. Three full sets verified in 1836, the weights belonging to one of which were last re-verified in 1862, and to the other two sets on 3 April 1867. Four additional full sets were verified in 1856, the weights of which were last re-verified in April 1867. None of the measures accompanying these sets have been officially re-verified since 1857. One further new full set was verified 7 Jan. 1867.
3 April 1867			23 Feb. 1867	
56 lbs. to 1 lb., 8 Jan. 1862; 8 oz. to half dram, 3 April 1867	8 Jan. 1862	16 Mar. 1867		
3 April 1867	6 Nov. 1856	20 Feb. 1867	20 Feb. 1867	
26 April 1867	26 April 1867	9 Mar. 1867	9 Mar. 1867	
8 Jan. 1862	8 Jan. 1862	13 April 1867	13 April 1867	
26 April 1868	17 Dec. 1861	6 April 1867	6 April 1867	
26 April 1867	6 Nov. 1856		23 Mar. 1867	
1826				A full set of 27 weights and measures verified in 1826, and not since re-verified.
				No return made. A full set verified in 1825, and re-verified in 1835. The weights since re-verified in 1840 and 1849, and both weights and measures on 4 June 1860. An additional set of weights verified in 1855, re-verified in 1860, and again on 28 July 1865.
21 July 1862	18 Oct. 1862			The first complete set, originally verified in 1838 and re-verified in 1862, is stated to be not in use. A full set was verified in 1826, and has not been since re-verified. Another complete set was verified on 18 Oct. 1862, of which the weights only were re-verified 31 Dec. 1866. A short set of avoirdupois weights was verified 4 Mar. 1867.
1 full set, 31 Dec. 1866. 1 short set, 4 Mar. 1867.	21 July 1862			
				A full set verified in 1826, and re-verified 23 Sept. 1851.
				A full set verified in 1826, and re-verified in 1854. The local Standards stated to have been sold many years since, and the inspection transferred to the county.
Dec. 1861	Dec. 1861			One full set verified 31 December 1825, and re-verified 21 Dec. 1861.
May 1864	May 1864	May 1864	May 1864	One full set verified in 1826, but not re-verified. Four full sets verified in 1834–5, the weights of which were last respectively re-verified, 1855, 6 June 1860 (two sets of weights), and 19 May 1864. One full set verified in 1844, and two in 1848, the weights belonging to which were re-verified in 1860 and 1864 (two). The measures belonging to these sets were re-verified as follows:—One set of measures re-verified in 1864, one in 1860, one in 1855, four in 1842; the other measures have not been officially re-verified since their original verification.
				No return made. A full set verified for the Borough of Daventry in 1826, and not since re-verified.
				No return made. A full set verified in 1844, and not since re-verified.
3 April 1865	12 Jan. 1859			One full set verified in 1826, the weights being last re-verified in 1865, the measures in 1859. Also a new set of avoirdupois weights issued in 1859.
12 Mar. 1866	12 Mar. 1866			The Standards were originally verified in 1826, for the "Soke" and City of Peterborough," and were not re-verified until 1866
16 Jan. 1862	16 Jan. 1862	24 Dec. 1866	24 Dec. 1866	One complete set verified in 1826, and last re-verified in 1835. Four complete sets verified in 1835, two of which were re-verified in 1860; one in 1862; one set of avoirdupois and troy weights only in 1866. None of the other weights or measures have been re-verified since their original verification. A further complete set verified in 1846, has not been since officially re-verified.
6 Oct. 1866	10 Jan. 1860			
24 April 1860	24 April 1860	24 Dec. 1866		
		24 Dec. 1866	1 Aug. 1860	
14 July 1846	14 July 1846	24 Dec. 1866	6 Aug. 1860	
		24 Dec. 1866	6 Aug. 1860	
				A full set (including 16 avoirdupois weights) verified in 1826, not since re-verified up to the date of the return. A full set, including nine new weights, re-verified 18 Jan. 1868.
23 June 1865	Capy. not stated; yard 23 June 1865.			Troy weights verified in 1833, not since re-verified. Measures of capacity and avoirdupois weights verified 1826, and re-verified 23 June 1865.
1862				One full set verified 23 June 1862. Also one short set verified in 1832, but not since re-verified.
				Verified in 1836, and not since re-verified.
19 April 1862	19 April 1862			Originally verified in 1836; re-verified as stated.
				No return made. A set of weights and measures verified in 1840, and not since re-verified.
				Verified in 1836, and not since re-verified.
				Verified in 1836, and not since re-verified.

territory in which that privilege was possessed. (History of England, by J. C. Curtis, 3rd edit., p. 45.) The ancient Saxon district of enjoyed the right of *soccage*.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Nottingham	6 Subdivisions of the County, viz.:—								
	Bingham								
	Mansfield								
	Newark								
	Nottingham	112	—	—	70	7	—	189	7
	Retford								
	Worksop								
	And the County set								
	Newark, Borough	16	—	—	10	1	—	27	1
	Nottingham, Town and County of Town	52	—	—	15	2	—	69	2
	Retford, East, Borough	—	—	—	—	—	—	—	—
	Total for the County of Nottingham	180	—	—	95	10	—	285	10
Oxfordshire	County	174	—	—	102	6	—	282	12
	Banbury, Borough	16	—	—	10	1	—	27	1
	Chipping Norton, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Oxford University	16	15	—	10	1	—	42	1
	Total for the County of Oxford	222	15	—	132	9	—	378	15
Rutland	Total for the County of Rutland	32	—	—	10	1	—	43	2
Salop	2 Subdivisions of the County, viz.:—								
	1. North	16	15	—	10	1	—	42	1
	2. South	16	—	—	10	1	—	27	1
	Bridgnorth, Borough	16	15	—	10	1	—	42	1
	Ludlow, Borough	16	—	—	10	1	—	27	1
	Oswestry, Borough	16	—	—	9	1	—	26	1
	Shrewsbury, Borough	16	—	—	10	1	1	28	1
	Wenlock, Borough	16	—	—	10	1	—	27	1
	Total for the County of Salop	112	30	—	69	7	1	219	7
Somersetshire	15 Subdivisions of the County, viz.:—								
	Axbridge	16	—	—	10	1	—	27	1
	Bridgwater	13	—	—	5	—	—	18	1
	Dunster	13	—	—	5	1	—	19	1
	Frome	16	—	—	10	1	—	27	1
	Glastonbury	16	—	—	10	1	—	27	1
	Ilminster	16	—	—	10	1	—	27	1
	Long Ashton	16	—	—	10	1	—	27	1
	Somerton	16	—	—	10	1	—	27	1
	Taunton	16	—	—	10	1	—	27	1
	Templecloud	17	—	—	10	1	—	28	1
	Weston	17	—	—	10	1	—	28	1
	Williton	16	—	—	10	1	—	27	1
	Wincanton	13	—	—	8	1	—	22	1
	Wiveliscombe	16	—	—	10	1	—	27	1
	Yeovil	16	—	—	9	1	—	26	1
	Axbridge, Borough	—	—	—	—	—	—	—	—

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
4 July 1853	4 July 1853	11 July 1865	11 July 1865	Two full sets verified in 1826, one of which was last re-verified in 1853. Three full sets verified in 1835–1836, one of which was last re-verified in 1853. Three full sets verified in 1853. One short set verified in 1857, the weights of which were last re-verified in 1866. A set of measures was also verified in 1859. None of the other weights or measures have been re-verified since their original verification.
26 May 1853	26 May 1853	,,	,,	
26 May 1853	26 May 1853	,,	,,	
29 July 1853	29 July 1853	,,	,,	
26 May 1853	26 May 1853	,,	,,	
12 Dec. 1857	12 Dec. 1857	,,	,,	
25 May 1866	23 Dec. 1859	,,	,,	
12 Mar. 1860	12 Mar. 1860	-	-	Originally verified in 1847; re-verified in 1860, and since on 1 May 1868.
1 set, 13 Nov. 1863	-	-	-	One full set was officially verified in 1826; the 16 weights were re-verified in 1857, and the measures on 14 Nov. 1867, since the date of the return. A second set of 16 weights and the five smaller measures of capacity were verified in 1857; the weights were re-verified on 13 Nov. 1863, the measures not re-verified. It is stated that the last-mentioned set of weights is used to test the office weights, and in all cases where informations are laid. There appears to be no legal authority for locally re-verifying borough standards with county standards. It is stated to have been done "in accordance with the suggestion of General Cartwright."
-	-	-	-	A full set verified in 1835, and not since re-verified. Inspection now transferred to the county.
1 set, 8 Aug. 1866 5 sets, 19 June 1858 4 sets, 19 June 1858 1 set, 30 June 1863 1 set, 10 June 1863	1 set, 8 Aug. 1856 5 sets, 19 June 1858 4 sets, 19 June 1858 1 set, 30 June 1863 1 set, 30 June 1863	-	-	One full set verified in 1830, and last re-verified in 1858. Three full sets verified in 1834; one full set, and one set of weights of which, were last re-verified 19 June 1858; one set of the measures was last re-verified in 1844, and one in 1865, also one set of weights in 1865; the others not re-verified. One full set verified in 1852, and re-verified 19 June 1858. Five short sets verified in 1854, and re-verified 19 June 1858; and one short set verified in 1856, but not yet re-verified.
10 Feb. 1868	10 Feb. 1868	-	-	Originally verified in 1828, re-verified in 1845, and again in 1868.
-	-	-	-	No return made. Full set originally verified in 1834, and last re-verified 30 Jan. 1863.
Jan. 1858	Jan. 1858	-	-	15 troy weights are stated in the return, but no troy weights have been officially verified for the University of Oxford, or for any district in the county. One full set verified for the University in 1826, and last re-verified on 13 Jan. 1858.
1 set, 26 June 1863 1 set, 25 May 1859	25 May 1859	2 July 1863	-	One full set verified in 1825, and last re-verified June 26, 1863; one set of avoirdupois verified 25 May 1859, not yet re-verified.
3 April 1867	3 April 1867	-	-	Complete set verified in 1837, and re-verified 3 April 1867. One full set verified in 1850, re-verified 25 Feb. 1867.
25 Feb. 1867	25 Feb. 1867	-	-	
1866	1859	-	-	Originally verified in 1835; re-verified 15 Aug. 1859, and the weights again re-verified 8 Jan. 1866.
17 May 1867	17 May 1867	-	-	Originally verified in 1849, and re-verified in 1859 and 1867.
17 Sept. 1866	17 Sept. 1866	-	-	One full set verified in 1835, not since officially verified. One complete set verified in 1855, which was, troy weights excepted, re-verified in 1861 and on 11 Sept. 1866. The troy weights have not been re-verified since their original verification.
May 1865	1839	-	-	Weights originally verified in 1839, and re-verified 8 April 1865. Measures originally verified 15 Feb. 1839, and not since re-verified.
3 Aug. 1865	3 Aug. 1865	-	-	Originally verified in 1853; weights re-verified in 1860, and both weights and measures in 1865.
-	-	31 March 1864	31 March 1864	One full set verified in 1825, and last re-verified on 29 Feb. 1864. Four short sets verified in 1859, but have not since been officially verified. Seven full sets were originally verified in 1835, the weights of which were last re-verified in 1848; the measures have not been re-verified. Sets are stated to have been transferred to the county from the Boroughs of Axbridge, Glastonbury, and Wells.
-	-	16 April 1864	16 April 1864	
-	-	July 1864	July 1864	
-	-	9 April 1864	9 April 1864	
-	-	1864	1864	
-	-	13 April 1867	13 April 1867	
-	-	11 March 1864	11 March 1864	
-	-	March 1864	March 1864	
-	-	16 April 1864	16 April 1864	
-	-	28 March 1864	28 March 1864	
-	-	26 March 1864	26 March 1864	
Feb. 1864	Feb. 1864	-	-	
-	-	6 April 1864	6 April 1864	
-	-	July 1864	July 1864	
-	-	March 1864	March 1864	
-	-	-	-	A full set verified for the Borough of Axbridge in 1825, and not since re-verified. Inspection now transferred to county.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Somersetshire—*cont.*	Bath, City and Borough - - -	32	—	31	20	1	2	86	1
	Bridgwater, Borough - - -	16	—	—	10	1	—	27	1
	Bristol, City and County of City - -	29	15	31	20	2	2	99	1
	Glastonbury, Borough - - -	—	—	—	—	—	—	—	—
	Wells, Borough - - - - -	—	—	—	—	—	—	—	—
	Yeovil, Borough - - - -	16	—	—	9	1	—	26	1
	Watchett, Manor and Borough, and adjacent Manors.	32	—	—	8	—	—	40	1
	Wiveliscombe, Borough and adjacent Manors	15	—	—	8	1	—	24	1
	Total for the County of Somerset	373	15	62	212	20	4	686	21
Staffordshire -	County - - - - - -	*48*	—	—	*30*	*3*	—	*81*	*3*
	Bilston, Market - - - -	*16*	—	—	*8*	—	—	*24*	*1*
	Burslem, Town - - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Hanley, Market - - - -	16	—	—	10	1	—	27	1
	Lichfield, City - - - -	*16*	*15*	*27*	*10*	*1*	—	*69*	*1*
	Newcastle-under-Lyne, Borough - -	16	—	—	10	1	—	27	1
	Stafford, Borough - - -	16	—	—	7	1	—	24	1
	Tamworth, Borough - - -	13	—	—	10	1	—	24	1
	Walsall, Borough - - -	15	15	—	10	1	—	41	1
	Wolverhampton, Borough - -	16	—	—	10	1	—	27	1
	Total for the County of Stafford	188	30	27	115	11	—	371	12
Suffolk - -	2 Divisions of the County:—								
	East Suffolk, 5 Districts, viz.:—								
	Beccles - - - -	29	—	—	20	2	—		
	Yoxford - - - -	32	—	—	20	2	—		
	Suffolk - - - -	29	—	—	14	2	—		
	Woodbridge - - -	80	—	—	50	5	—		
	Ipswich (No. 5) - - -	17	—	—	10	1	—	448	17
	West Suffolk, Head Quarters:—								
	Bury St. Edmund's - -	16	—	—	10	1	—		
	4 Districts, viz.:—								
	Cosford - - - -	16	—	—	10	1	—		
	Mildenhall - - -	16	—	—	10	1	—		
	Clere - - - -	16	—	—	10	1	—		
	Ixworth - - - -	16	—	—	10	1	—		

* Since these remarks were written, full returns of the inspection of weights and measures have been received from the inspectors for the three districts of the follows:—North Staffordshire, one full set last re-verified 1869; the previous re-verification not stated; South Staffordshire, one full set

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
1 set, 7 Oct. 1864, other set not stated.	7 Oct. 1864	Second set periodically re-verified by Inspector. Date not stated.		One full set only has been verified for the City of Bath, originally in 1826, and re-verified from time to time, last, as stated, in 1864. The second set of avoirdupois weights and measures of capacity, stated to be the working set, and "to be periodi- "cally verified by the Standards verified at the Exchequer," has never been officially re-verified, nor have the bullion weights. These bullion weights are stated to be "never re- "quired for use." One cubic foot bottle was also verified for Bath on 7 May 1861, under the Sale of Gas Act, 1859.
18 Jan. 1868	18 Jan. 1868	-	-	Originally verified in 1836; re-verified in 1848; weights only in 1856 and 1861, and the full set in 1868.
6 May 1864	6 May 1864	Every month	Every month	Only one full set of avoirdupois weights and measures officially verified in 1826; re-verified in 1840, when a set of troy weights was also verified, and has not been since re-verified. The avoirdupois weights were re-verified in 1858, and the full set in 1864. The working set, stated to be "re-verified by the "local Standards every month," have never been officially verified. The bullion weights were verified 26 July 1864.
-	-	-	-	A full set was verified for the Borough of Glastonbury in 1843, and has not been re-verified. The inspection is now transferred to the county, and the Glastonbury Standards are stated to have been sold as old metal.
-	-	-	-	A full set verified in 1835 for the Borough of Wells, and not re-verified. Inspection transferred to the county.
-	-	March 1864	March 1864	A complete set, including troy weights, verified in 1835; the avoirdupois weights and the measures officially re-verified 25 Aug. 1859; troy weights not re-verified.
17 Jan. 1856	17 Jan. 1856	-	-	Only 13 weights, from 56 lbs. to $\frac{1}{2}$ oz. inclusive, and 8 measures of capacity officially verified, as stated, 1856. The stated 32 weights include 3 weights, each of 4 lbs. to $\frac{1}{2}$ oz. inclusive, and 4 of $\frac{1}{4}$ oz.
2 Nov. 1861	2 Nov. 1861	-	-	Original verification in 1837. The greater part of the weights renewed in 1861. The 4-dram weight is stated to have been lost and another 4-dram weight verified with the County Standard.
-	-	-	-	No return made.* One full set officially verified in 1826, two more sets in 1834, and one in 1835. All re-verified from time to time, the last re-verification of one set up to 1866 being on 19 March 1864, the others in 1863. One full set since re-verified 7 July 1868.
-	-	-	-	No return. One short set verified for Bilston Market in 1849, not since re-verified.
-	-	-	-	No return. One full set verified for Burslem in 1826, not since re-verified.
-	-	-	-	A full set verified for Hanley Market on 4 Dec. 1835, and the weights re-verified in 1847. The weights are stated to have been "lately adjusted," and the measures not to be used.
-	-	-	-	No return. One full set verified in 1826, and re-verified 2 June 1860. Set of troy weights also verified in 1860.
-	-	-	-	A full set verified in 1834; the weights re-verified in 1850. At the date of the return (Aug. 1867) the Standards were stated to have been to London for re-verification; they were re-verified 17 Dec. 1867.
18 Jan. 1865	18 Jan. 1865	-	-	Original verification, 1835; re-verified. 1841, and on 30 Dec. 1864.
-	-	-	-	Officially verified in 1826, and not re-verified.
Jan. 1865, and troy Jan. 1860.	Jan. 1860	-	-	Full set of avoirdupois weights and of measures verified in 1826, and last re-verified, weights on 21 Jan. 1865, and measures on 31 Dec. 1859. A set of troy weights verified in 1835, and another set on 31 Dec. 1859.
Sept. 1863	-	-	-	Full set verified 14 April 1858. Weights re-verified 6 Oct. 1863; measures not re-verified.
20 July 1859	20 July 1859	7 Sept. 1864	7 Sept. 1864	Fifteen sets have been originally verified for Suffolk, or two sets less than the number stated in the return to be now in use. For Bury Division one full set was verified in 1826, and one in 1834, one set being last re-verified in 1859, the other in 1865. Two sets were last re-verified for Cosford in 1859, one set of the weights being again re-verified in 1865. A full set verified for Beccles Division in 1826, was last re-verified in 1867. A set issued for Suffolk in 1854, was re-verified in 1860. For the Woodbridge Division one set was verified in 1826, and re-verified in 1858, and since on 29 Sept. 1868; a second set was verified in 1850, the weights of which were re-verified in 1858. For the Ipswich Division a full set was verified in 1826, the weights being re-verified in 1865, the measures in 1858. No Standards appear to have been verified specially for the Clere, Mildenhall, and Yoxford Divisions. But two full sets were verified for *St. Ethelred* Division in 1827 and 1853, the first set being re-verified in April 1858. A full set verified for *Blything* Hundred in 1827 was re-verified in 1861. Two full sets were verified for *Baberg* in 1843 and 1848, one full set and one set of weights being re-verified in 1858. A full set was verified for Bungay Division in 1853. In 1855 a set verified previously for the Town of Stowmarket was re-verified for the county, the weights being re-verified again in 1864. All the Standards verified in 1824–1826 appear to have been also re-verified in 1834 and 1835.
1 set, 1861; 1 set, 1862.	1 set, 1861; 1 set, 1862.	-	-	
-	-	-	-	
1 set, 10 Aug. 1863, others April 1858.	1 set, 10 Aug. 1863, others April 1858.	4 sets, 9 Sept. 1863	-	
-	-	-	-	
10 Jan. 1865	16 Jan. 1865	-	-	
3 April 1865	3 April 1865	-	-	
3 April 1865	3 April 1865	-	-	
3 April 1865	3 April 1865	-	-	
11 April 1860	11 April 1860	8 Feb. 1855	8 Feb. 1865	

county of Stafford; from which it would appear that the Standards used in the North, South, and Central Districts of Staffordshire were last re-verified as re-verified 1864, and 7th July 1868; Central Staffordshire, one full set last re-verified March 1869, the previous re-verification not stated.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Suffolk—*cont.*	Aldeburgh, Borough - - -	16	—	—	10	1	—	27	1
	Bury St. Edmund's, Borough - -	16	—	—	10	1	—	27	1
	Eye, Borough - - - -	—	—	—	—	—	—	—	—
	Halesworth, Town - - -	—	—	—	—	—	—	—	—
	Ipswich, Borough - - -	16	—	—	10	1	—	27	1
	Orford, Borough - - - -	—	—	—	—	—	—	—	—
	Southwold, Borough and Manor - -	16	—	—	10	1	—	27	1
	Stowmarket, Town - - -	—	—	—	—	—	—	—	—
	Sudbury, Borough - - -	16	15	—	10	1	—	42	1
	Total for the County of Suffolk -	347	15	—	214	22	—	598	22
Surrey - -	11 Subdivisions of the County, viz. :—								
	A. (West) District - -	16	—	—	10	1	—	27	1
	A. (East) „ - -	17	—	27	10	1	—	54	1
	B. „ - -	16	—	—	10	1	—	27	1
	C. „ - -	16	—	—	10	1	—	27	1
	D. (Guildford) „ - -	16	—	—	10	1	—	27	1
	E. (Reigate) „ - -	16	—	—	10	1	—	27	1
	No. 1 (Chertsey) „ - -	16	—	—	10	1	—	27	1
	„ 2 (Farnham) „ - -	13	—	—	5	1	—	19	1
	„ 3 (Dorking) „ - -	13	—	—	5	1	—	19	1
	„ 4 (Godstone) „ - -	16	—	—	5	1	—	22	1
	„ 5 (Godalming) „ - -	13	—	—	5	1	—	19	1
	Battersea, Parish - - - -	—	—	—	—	—	—	—	—
	Camberwell, Parish of St. Giles - -	—	—	—	—	—	—	—	—
	Clapham, Parish - - - -	—	—	—	—	—	—	—	—
	Godalming, Borough - - -	—	—	—	—	—	—	—	—
	Guildford, Borough - - -	16	—	—	5	1	—	22	1
	Kingston, Borough - - -	—	—	—	—	—	*10*	*10*	—
	Mitcham, Parish of - - -	—	—	—	—	—	—	—	—
	Southwark, Town and Borough - -	—	—	—	—	—	—	—	—
	Streatham, Parish - - -	—	—	—	—	—	—	—	—
	Croydon, Manor - - - -	—	—	—	—	—	—	—	—
	Southwark, Manor - - - Manors.	—	—	—	—	—	—	—	—
	Total for the County of Surrey -	183	—	27	95	12	10	327	12

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

- - - - Standards used by Inspectors.

Date when last officially verified.		Date when last locally re-verified by Inspector.		Remarks by the Warden of the Standards.
Weights.	Measures.	Weights.	Measures.	N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Feb. 1862 -	- - -	- - -	- - -	A full set verified in 1826, and re-verified 18 Jan. 1862.
Feb. 1861 -	Feb. 1861 -	March 1858 -	March 1858 -	A full set verified for the *Borough* of Bury St. Edmund's in 1826, and re-verified on 21 May 1860. The *Liberty* of Bury St. Edmund's is included in the county.
- - -	- - -	- - -	- - -	A set of weights and measures verified in 1826, and re-verified in 1836. The yard is stated to have been recently lost, and the Borough Standards not used for many years, as the inspection is transferred to the county.
- - -	- - -	- - -	- - -	A set of weights and measures verified for Halesworth Market in 1826, and not since re-verified. Inspection transferred to county police.
6 March 1867 -	6 March 1860 -	- - -	- - -	A full set verified in 1844, and re-verified on 6 March 1860; weights re-verified 14 Jan. 1867.
- - -	- - -	- - -	- - -	No return made. A full set verified in 1825, and not re-verified.
5 March 1853 -	5 March 1853 -	- - -	- - -	A set verified in 1826, and re-verified as a full set in 1853; not since re-verified. It is stated that great care is taken of the Standards, and that they do not require re-verification, the inspection being vigilantly exercised and no information having been brought during the last 15 years.
- - -	- - -	- - -	- - -	Full set verified for Stowmarket in 1827, and re-verified in 1855. The weights re-verified 29 Dec. 1864 as a county set, the inspection being transferred to the county.
Avoirdupois 19 July 1860.	19 July 1860 -	6 Sept. 1865 -	- - -	A complete set, including troy weights, verified in 1835; the avoirdupois weights and measures of capacity re-verified in 1860; the troy weights not re-verified. It is stated that the troy weights are never used. The full set since re-verified on 17 Oct. 1868.
27 May 1865 -	27 May 1865 -	- - -	- - -	Four full sets verified in 1825 for the *county*, two of these full sets, two sets of avoirdupois, and two sets of measures from quart to ½ gill being last re-verified 17 May 1867, the other measures in 1863. A set of avoirdupois weights verified in 1859, were last re-verified for A. Division, West, 17 May 1867. Five full sets verified in 1855 for the *county* were all last re-verified 17 May 1867; one full set, also verified in 1855, was re-verified, excepting bushel to peck, 16 May 1868. In 1837 measures from quart to ½ gill, and in 1865 measures from a bushel to ½ gallon, were verified for the *Borough of Southwark* and Brixton Divisions, the measures from a quart down being re-verified 20 Aug. 1868. No *troy* Standards appear to have been verified for Surrey, although the inspector for Southwark states that there are frequent applications to him to verify troy weights. The bullion Standards verified in 1856, and re-verified Oct. 1868.
Avoirdupois, May 1865; bullion, 1856.	Jan. 1863 -	- - -	- - -	
May 1867 -	- - -	- - -	- - -	
- - -	- - -	- - -	- - -	
May 1867 -	May 1867 -	- - -	- - -	
,, -	,, -	- - -	- - -	
,, -	- - -	- - -	- - -	
,, -	- - -	- - -	- - -	
,, -	May 1867 -	- - -	- - -	
April 1867 -	April 1867 -	- - -	- - -	
May 1867 -	May 1867 -	- - -	- - -	
- - -	- - -	- - -	- - -	A set of weights and measures verified for the Parish of Battersea in 1826, and not since re-verified. Inspection and Standards now transferred to county.
- - -	- - -	- - -	- - -	A set of weights and measures verified for the Parish of St. Giles, Camberwell, in 1826, and not re-verified. Inspection appears to be transferred to the county.
- - -	- - -	- - -	- - -	A set of weights and measures verified for the Parish of Clapham in 1826, and not re-verified. Inspection appears to be transferred to the county.
- - -	- - -	- - -	- - -	A set of weights verified for the Town and Parish of Godalming in 1826, and not re-verified. Inspection transferred to the county.
23 June 1856 -	23 June 1856 -	- - -	- - -	Officially verified in 1856, and not since re-verified.
- - -	- - -	- - -	- - -	No return made. A set of weights and measures verified for the Corporation of Kingston in 1826, and not since re-verified.
- - -	- - -	- - -	- - -	A set of weights and measures verified for the Parish of Mitcham in 1827, and not re-verified. Inspection now included in the county.
- - -	- - -	- - -	- - -	The Inspection of the Borough of Southwark is included in the county. A distinct set of weights and measures was verified in 1841 for the town and borough, and delivered to the custody of the High Bailiff of Southwark; not since re-verified.
- - -	- - -	- - -	- - -	A set of weights and measures verified for the Parish of Streatham in 1828, and not since re-verified.
- - -	- - -	- - -	- - -	A set of weights and measures verified in 1829 for Croydon Manor, and not since re-verified. Inspection probably included in county.
- - -	- - -	- - -	- - -	A set of weights and measures verified in 1826, and delivered to the custody of the Lord of the Manor, and not since re-verified. It is stated that no jurisdiction is now exercised, and Standards transferred to City of London.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Sussex - -	11 Subdivisions of the County, viz.:—								
	Arundel and Worthing District -	16	—	—	10	1	—	27	1
	Battle „ -	16	15	—	10	1	—	42	1
	Chichester „ -	16	—	—	10	1	—	27	1
	East Grinstead „ -	16	—	—	10	1	—	27	1
	East Sussex, No. 2 „ -	16	15	—	10	1	—	42	1
	Horsham „ -	16	—	—	10	1	—	27	1
	Lewes „ -	16	15	—	10	1	—	42	1
	Mansfield „ -	16	15	—	10	1	—	42	1
	Midhurst „ -	16	—	—	10	1	—	27	1
	Petworth „ -	16	—	—	10	1	—	27	1
	Steyning „ -	16	—	—	5	—	—	21	1
	Arundel, Borough - - -	15	—	—	9	—	—	24	1
	Battle, Town - - - -	—	—	—	—	—	—	—	—
	Brighton, Borough - - -	32	25	—	20	2	2	81	3
	Chichester, City - - - -	16	—	—	10	1	—	27	1
	East Grinstead, Town - - -	—	—	—	—	—	—	—	—
	Hastings, Borough - - -	25	—	—	10	1	—	36	1
	Pevensey, Liberty of - - -	16	—	—	10	1	—	27	1
	Rye, Borough - - - -	—	—	—	—	—	—	—	—
	Winchelsea, Borough - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Worthing, Town - - - -	—	—	—	—	—	—	—	—
	Total for the County of Sussex	296	85	—	174	16	2	573	19
Warwickshire -	5 Hundreds of the County, viz.:—								
	Barlickway, Hundred - -	16	—	—	10	1	—	27	5
	Hemlingford „ Part 1 - -	16	—	—	10	1	—	27	
	„ „ Part 2 - -	16	—	—	10	1	—	27	
	Kineton „ - -	16	—	—	10	1	—	27	
	Knightlow „ - -	16	—	—	10	1	—	27	
	Birmingham, Borough - - -	64	—	62	21	2	3	152	4
	Coventry, City - - - -	16	—	—	10	1	—	27	1
	Leamington, Parish - - -	16	—	—	10	1	—	27	1
	Stratford-on-Avon, Borough - -	16	—	—	10	1	—	27	1
	Sutton Coldfield, Royal Town, Manor of -	16	—	—	10	1	—	24	1
	Warwick, Borough - - -	15	—	—	10	1	—	26	1
	Total for the County of Warwick	220	—	62	121	12	3	418	14

and Measures in Great Britain, for the year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
				Battle District.—A full set, originally verified in 1835 for *Town* of Battle, was re-verified for this Division 9 Dec. 1866; a short set verified for Hundred of Battle in 1832 has never been re-verified. Chichester District.—A full set was originally verified in 1835 for *City* of Chichester, but in 1866 the weights belonging to this set were re-verified for the use of the *county*; the measures were last re-verified in 1852. East Grinstead.—Full set verified for *Town* of East Grinstead was re-verified in 1867 for use of the *county*. East Division.—A complete set verified in 1826 for this division, and last re-verified 31 Aug. 1866; also a complete set was verified for this division in 1835 and 1861, the weights being re-verified 9 Dec. 1866. Worthing.—A full set, verified for the Town of Worthing in 1835, was re-verified for the use of the *county* in 1866. West Division.—For this division one complete set verified in 1826, one full set in 1835, and two short sets in 1852, were all re-verified 31 Dec. 1866. One full set and one short set were verified in 1833–34 for the county, which have not been re-verified.
Jan. 1867	-	Aug. 1862	Aug. 1862	
,,	Jan. 1867	6 Sept. 1864	6 Sept. 1864	
,,	,,	Aug. 1862	Aug. 1862	
17 May 1867	17 May 1867	6 Sept. 1864	6 Sept. 1864	
10 Apr. 1858	10 Apr. 1858	,,	,,	
Jan. 1867	Jan. 1867	Aug. 1862	Aug. 1862	
7 Sept. 1866	7 Sept. 1866	Not stated	Not stated	
Jan. 14, 1867	14 Jan. 1867	6 Sept. 1864	6 Sept. 1864	
Jan. 1867	Jan. 1867	Aug. 1862	Aug. 1862	
,,	,,	6 Sept. 1864	6 Sept. 1864	
,,	,,	Aug. 1862	Aug. 1862	
1862	-	-	-	A set verified in 1828; the weights and yard re-verified in 1852, and the full set last re-verified on 15 Mar. 1862.
-	-	-	-	A full set verified in 1835 for the Town of Battle. Standards and inspection transferred to the county.
1 set avoirdupois, Sept. 1864; troy, Aug. 1856	Sept. 1864	-	-	One full set verified in 1826; re-verified in 1844 and in 1864. An additional complete set, including troy weights, verified in 1835; the avoirdupois weights only re-verified in 1858; another set of troy weights was verified on 8 Aug. 1856. It is stated that one set is kept solely for the purpose of occasionally comparing the second set, which is kept for use, and not sent for official re-verification.
11 Mar. 1866	11 Mar. 1866	-	-	A full set originally verified in 1835; the weights last re-verified 31 Dec. 1866. There appears to be also a county set at the City of Chichester.
-	-	-	-	A full set verified for the Town of East Grinstead in 1835; the weights re-verified in 1856. Both weights and measures were re-verified in 1867 as a county set, the inspection being transferred to the county.
5 Apr. 1862	5 Apr. 1862	-	-	A full set verified in 1826; the weights re-verified in 1843, and again, with the measures in 1862. The weights since re-verified 4 Mar. 1868. Several of the weights have been renewed, but only 16 are legal Standards.
Mar. 1862	Mar. 1862	-	-	A full set verified in 1851, and re-verified 20 Feb. 1862.
-	-	-	-	A full set verified in 1826 for the Borough of Rye, and not since re-verified. It is stated "No return kept" of weights and measures in the borough.
-	-	-	-	No return made. A full set verified in 1826, and the weights re-verified 17 May 1861.
-	-	-	-	A full set verified in 1835; last re-verified on 31 Dec. 1866 for the county, Standards and inspection being transferred to the county.
				Hundred of Barlickway.—A full set verified for this hundred in 1825, and last re-verified 3 June 1863. Hemlingford Hundred.—Two full sets verified for this hundred in 1825, one of which was re-verified 31 Jan. 1859, the other 12 Aug. 1861. Hundred of Kineton.—A full set issued for this hundred in 1825, and re-verified 3 June 1863. Hundred of Knightlow.—A full set issued for this hundred in 1825, and re-verified 3 June 1863. A full set originally issued in 1826 was re-verified for the *Town of Sutton Coldfield*, to be delivered into the custody of the Clerk of the Peace for the *county*, on 10 Feb. 1868. Also a full set was verified in 1825, and re-verified in 1847, for the *Borough of Stratford-upon-Avon*, to be delivered into the custody of the Clerk of the Peace for the *county*.
3 June 1863	3 June 1863	-	-	
Mar. 1862	Mar. 1862	-	-	
Mar. 1859	Mar. 1859	-	-	
May 1863	May 1863	-	-	
,,	,,	-	-	
Avoirdupois. 1 set 29 Dec. 1846, 3 sets in 1866. Bullion. Sept. 1856.	Gas. Oct. 1861. Length. 1 in Dec. 1825, 1 in Aug. 1860. Capacity. 1 set and 1 gall. 1860, quart to half-gill Apr. 1862; ditto, July 1866.	-	-	One full set issued in 1825, the weights being last re-verified 7 May 1866, the measures 23 Aug. 1859. Two sets of avoirdupois, and one set of measures from gallon to yard, issued in 1846, one set of the avoirdupois being last re-verified in 1866, the measures in 1862, and the other weights not re-verified. One set of avoirdupois issued in 1863 was re-verified in 1866, when new measures from quart to half-gill were added to the set.
3 Sept. 1866	3 Sept. 1866	-	-	One full set verified in 1826; not since re-verified. A second full set verified 4 Dec. 1839, and re-verified 31 Aug. 1866.
8 Nov. 1864	Not stated	-	-	Full set originally verified 16 Mar. 1859; the weights re-verified 10 Oct. 1864.
July 1867	July 1867	-	-	Verified in 1825, and re-verified 20 May 1867. (See remarks on Warwickshire.)
-	-	-	-	Verified in 1825, and up to the date of the return never officially re-verified, though stated to have been adjusted at Birmingham in 1858. Inspection by charter, 28 Hen. 8. and 16 Charles 2. This set since re-verified 10 Feb. 1868, both Standards and inspection being transferred to the county. (See county.)
12 Aug. 1861	12 Aug. 1861	-	-	Originally verified in 1826; re-verified only in 1861.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Westmoreland	County	32	—	—	20	2	—	54	2
	Kirby-in-Kendal, Borough	—	—	—	—	—	—	—	—
	Total for the County of Westmoreland	32	—	—	—	2	—	54	2
Wiltshire	9 Subdivisions of the County, viz.:—								
	Bradford	16	—	—	5	—	—	21	
	Hindon	12	—	—	1	1	—	14	
	Swindon	12	—	—	1	—	—	13	
	Warminster	16	—	—	10	1	—	27	
	Devizes	16	—	—	10	1	—	27	
	Malmesbury	12	—	—	1	—	—	13	9
	Marlborough								
	Everley	16	—	—	1	1	—	18	
	Pewsey								
	Chippenham	16	—	—	1	—	—	17	
	Salisbury	16	—	—	10	1	—	27	
	Devizes, Borough	*16*	—	—	*10*	*1*	—	*27*	*1*
	Marlborough, Borough	16	15	—	10	1	—	42	1
	Sarum, New, City and Borough	16	—	—	10	1	—	27	1
	Swindon, Market	—	—	—	—	—	—	—	—
	Aldborne, Manor	—	—	—	—	—	—	—	—
	Trowbridge, Manor	—	—	—	—	—	—	—	—
	Total for the County of Wilts	180	15	—	70	8	—	273	12
Worcestershire	9 Subdivisions of the County, viz.:—								
	Bromsgrove	16	15	—	10	1	—	42	
	Halesowen	16	15	—	10	1	—	42	
	Hundred House and Tenbury	16	14	—	10	1	—	41	
	Northfield	16	15	—	10	1	—	42	
	Pershore	16	15	—	10	1	—	42	9
	Stourbridge	16	15	—	10	1	—	42	
	Stourport	15	12	—	10	1	—	38	
	Upton	16	15	—	10	1	—	42	
	Worcester (No. 1)	16	15	—	10	1	—	42	
	Bewdley, Borough	16	—	—	9	—	—	25	1
	Droitwich, Borough	16	—	—	10	1	—	27	1
	Dudley, Parish and Borough	—	—	—	—	—	—	—	—
	Evesham, Borough	—	—	—	—	—	—	—	—
	Kidderminster, Borough	16	—	—	10	1	—	27	1
	Stourbridge, Town	—	—	—	—	—	—	—	—
	Worcester, City	16	—	—	10	1	1	28	1
	Cutsdam, Manor	—	—	—	—	—	—	—	—
	Evesham, Manor	—	—	—	—	—	—	—	—
	Total for the County of Worcester	207	131	—	129	12	1	480	13
Yorkshire	East Riding	112	—	—	70	7	—	189	7
	North Riding, 17 subdivisions:—		—						
	Bulmer	16	—	—	10	1	—		
	Allertonshire	16	—	—	10	1	—		
	Birdforth	15	—	—	10	1	—		
	Hallikeld	16	—	—	10	1	—		
	Gilling, East	16	—	—	10	1	—		
	„ West	15	—	—	10	1	—		
	Northallerton	16	—	—	10	1	—		
	Hang, East	16	—	—	10	1	—		
	„ West	15	—	—	10	1	—	456	17
	Stokesley	16	—	—	10	1	—		
	Guisbro'	16	—	—	10	1	—		
	Malton	16	—	—	10	1	—		
	Pickering, Lythe, East	16	—	—	10	1	—		
	„ „ West	16	—	—	10	1	—		
	Ryedale	16	—	—	10	1	—		
	Whitby Strand	16	—	—	10	1	—		
	Yarn	16	—	—	10	1	—		

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
1 set 19 Mar. 1863, 1 set 2 June 1863.	1 set 19 Mar. 1863, 1 set 2 June 1863.	-	-	One full set verified for the county in 1826, and re-verified 19 Mar. 1863. (See Kirby.)
-	-	-	-	A full set verified in 1835, and re-verified in 1858 and 1863, and since on 9 Sept. 1867. Inspection and Standards transferred to county.
1865	1865	-	-	One set originally verified in 1826, three in 1835, and five in 1848. The weights were re-verified in 1859, and one set of measures in 1860. No measures were re-verified in 1865. A set of measures of capacity since officially re-verified 2 Nov. 1867.
June 1865	-	-	-	
1865	-	-	-	
Sept. 1865	-	-	June 1865	
1865	-	-	-	
1865	-	-	-	
1865	-	-	-	
June 1865	June 1865	-	-	
-	-	-	-	No return made. A full set verified in 1846, and re-verified 17 April 1868.
Not since 1862	Not since 1862	-	-	Originally verified 20 Jan. 1835, and not officially re-verified since. Inspection transferred to county police.
9 Jan. 1867	Not stated	-	-	Originally verified in 1825, and re-verified in 1858; weights and measures re-verified 8 Jan. 1866.
-	-	-	-	No return made. A bushel measure verified for the Clerk of the Market in 1842, and not re-verified.
-	-	-	-	No return made. A set of weights and measures verified for the Manor of Aldborne in 1826, and not since re-verified.
-	-	-	-	A set of weights and measures verified in 1826 for the Town and Liberty of Trowbridge for the custody of the Lord of the Manor. Inspection now by county police.
-	-	Apr. 1865	Apr. 1865	Seven full sets, with three sets of troy weights, verified in 1835, and re-verified in 1848, when nine complete sets, including troy weights, were made up. One complete set was re-verified in 1858, and one set of avoirdupois and troy weights re-verified on 28 Nov. 1863. A full set of avoirdupois weights and of measures since re-verified 7 May 1868.
-	-	,,	,,	
-	-	,,	,,	
-	-	,,	,,	
-	-	,,	,,	
-	-	,,	,,	
-	-	,,	,,	
-	-	,,	,,	
28 Nov. 1863	28 Jan. 1858	-	-	Originally verified 3 July 1849, and re-verified 10 Mar. 1860.
-	-	-	-	Originally verified 23 May 1862, and not re-verified.
Not since purchased	Not since purchased	-	-	A complete set, and an additional set of troy weights verified in 1827, for the custody of the Clerk of the Market. Inspection now exercised by the county police.
1862	1862	-	-	A full set verified in 1835, and not since re-verified. Inspection transferred to county police.
-	-	-	-	Originally verified in 1831; both weights and measures re-verified in 1862 and in 1867.
17 June 1867	-	-	-	A full set verified in 1826. Inspection transferred to county police.
-	-	-	-	A full set verified in 1825 and not re-verified. A second set of weights including troy weights, verified in 1856, and measures added in 1860. Avoirdupois weights re-verified in 1867.
7 Dec. 1867	26 Jan. 1860	-	-	No returns from these two manors. A set of weights and measures verified for each in 1836. Inspection probably now exercised by county.
-	-	-	-	
-	-	-	-	
1867	1867	-	-	Three full sets were re-verified for East Riding in 1867, and three more on 4 Mar. 1868, and one set on 28 May 1868.
19 Mar. 1858	-	5 Nov. 1863	5 Nov. 1863	A full set was re-verified, as stated, on 21 July 1863. All the weights were re-verified in 1858, and one set of measures only. Five full sets have been since re-verified on 28 Jan. 1868, and five sets of weights on 5 June. It is stated that the inspection was transferred to the constabulary in 1858, when some of the Standards in possession of the old inspectors (who were under no supervision) were found "to be in a most "disgraceful state from dirt and neglect."
18 Dec. 1858	Uncertain	4 June 1863	4 June 1863	
6 Dec. 1858	6 Dec. 1858	5 July 1862	5 July 1862	
21 Aug. 1858	21 Aug. 1858	14 Nov. 1863	14 Nov. 1863	
13 Dec. 1858	13 Dec. 1858	17 Oct. 1863	-	
13 Dec. 1858	13 Dec. 1858	17 Oct. 1863	17 Oct. 1867	
14 Apr. 1858	14 Apr. 1858	1863	-	
6 Dec. 1858	6 Dec. 1858	14 July 1863	14 July 1863	One full set verified for North Riding in 1825, the weights being last re-verified in 1868, and the measures in 1858. Two full sets verified in 1831, one set re-verified in 1868, and the weights only of the other set re-verified in 1858. Full set verified in 1834, re-verified in 1868. Sixteen full sets verified in 1834, of which there were re-verified, four full sets and four sets of weights in 1868, five sets of weights in 1858, and one full set in 1863. None of the other sets have been re-verified.
,,	,,	2 Oct. 1858	2 Oct. 1868	
,,	,,	-	-	
21 July 1863	21 July 1863	-	-	
6 Dec. 1858	6 Dec. 1858	31 Oct. 1858	31 Oct. 1858	
,,	,,	25 Nov. 1853	25 Nov. 1853	
,,	,,	31 Aug. 1863	31 Aug. 1863	
,,	,,	,,	,,	
21 Aug. 1858	21 Aug. 1858	19 Aug. 1863	19 Aug. 1863	
6 Dec. 1858	6 Dec. 1858	1863	-	

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Yorkshire—*cont.*	West Riding	*416*	—	—	*250*	*25*	—	*691*	*25*
	Bradford, Borough	32	15	—	14	1	2*	64	3
	Beverley, Borough	16	—	—	10	1	—	27	1
	Doncaster, Borough	16	—	—	10	1	—	27	1
	Halifax. See Wakefield, Manor.								
	Hedon, Borough	—	—	—	—	—	—	—	—
	Hull. See Kingston-on-Hull.								
	Kingston-on-Hull, Borough	19	—	—	10	1	*1*	31	2
	Leeds, Borough	32	10	—	20	2	*3*	67	2
	Middlesboro', Borough	16	—	—	6	1	1	24	1
	Pontefract, Borough	23	—	—	10	1	—	34	2
	Richmond, Borough	16	15	—	10	1	—	42	1
	Ripon, City or Borough and Liberty	16	—	—	13	1	—	30	1
	Scarborough, Borough	32	—	—	9	1	*2*	44	2
	Sheffield, Borough	67	—	31	22	2	4	126	4
	York, City	29	—	—	19	1	1	50	2
	Burlington, Manor	—	—	—	—	—	—	—	—
	Eccleshall Bierlow, Manor	—	—	—	—	—	—	—	—
	Honley, &c., Manor	*13*	—	—	*5*	—	—	*18*	*1*
	Leeds, Kirkgate, &c., Manors	15	—	—	9	—	—	24	1
	Wakefield, Manor, and Town of Halifax	*32*	—	—	*20*	*2*	*1*	*55*	*2*
	Total for the County of York	1,171	40	31	677	65	15	1,999	75

* Including weight of

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
- - -	- - -	- - -	- - -	No return. There have been originally verified for the West Riding, two full sets in 1826, 18 full sets in 1834, one full in 1835, one set of avoirdupois in 1837, one full set in 1837, one in 1857, two in 1861, and one 3 Apr. 1868; of which there have been re-verified, one full set re-verified in 1859, two sets of weights in 1865, and one full set 23 Dec. 1867. None of the other sets have ever been officially re-verified, but occasionally a single weight or measure has been verified to replace another stated to have been either lost or damaged.
1 set avoirdupois, 19 Dec. 1866; 1 set troy, 4 Mar. 1867.	1 set, 19 Dec. 1866; 1 set.	- - -	- - -	A full set verified in 1860 for the Manor of Bradford, and for the custody of the ladies of the manor; re-verified in 1866 for the Borough of Bradford. An additional complete set, including troy weights, verified in 1867.
5 July 1867 -	5 July 1867 -	- - -	- - -	A full set verified, 1826, re-verified, 1860, and again 17 June 1867.
- - -	- - -	- - -	- - -	A full set verified in 1825, and re-verified 26 Apr. 1861; weights re-verified 8 July 1866.
- - -	- - -	- - -	- - -	A set verified in 1826, and not since re-verified. Inspection transferred to East Riding.
- - -	- - -	- - -	- - -	One full set (including 16 avoirdupois weights) officially verified in 1826, and not re-verified.
1 set, 1861; 1 set, 1867.	1 set, 1861 -	- - -	- - -	One full set verified in 1826, and not re-verified. Two sets avoirdupois, one set troy, and three sets of measures verified in 1834; one set of avoirdupois weights and one set of measures re-verified 9 Aug. 1861. The troy weights and other measures not re-verified. Two new sets of avoirdupois weights verified in 1849; one set re-verified in 1856, and again 9 Sept. 1867.
- - -	- - -	- - -	- - -	The weights and measures of capacity re-verified 3 Nov. 1857; the yard, 11 Oct. 1860. They have been since re-verified on 17 Dec. 1867.
24 July 1867 -	18 Jan. 1862 -	- - -	- - -	A full set verified in 1826, re-verified in 1847 and 18 Jan. 1862; the weights in 1867, when seven of the weights were renewed.
4 Mar. 1867 -	- - -	- - -	- - -	A complete set, including troy weights, verified in 1835, all re-verified in 1848 and in 1867.
1860 - -	1860 - -	- - -	- - -	A full set verified in 1826, and re-verified 24 May 1840; the weights since re-verified 17 Apr. 1868. It is stated that three wooden measures are used as Standards of the half peck, quarter peck, and half-quarter peck. These wooden measures are not legal local Standards.
31 Dec. 1868 -	- - -	- - -	- - -	A full set, except the yard, verified in 1828; the weights and smaller measures re-verified on 4 Feb. 1864. The second set of weights and four measures, including the yard, verified 31 Dec. 1863.
1 set, 30 Sept. 1862; 1 set, 2 Oct. 1862; 2 sets, 9 Dec. 1862; Bullion, 25 Apr. 1864.	1 set, 30 Sept. 1862; 1 set, 2 Oct. 1862; Gas, Oct. 1861 and July 1866.	- - -	- - -	One full set verified in 1827 for the Town of Sheffield and for the Treasurer of the Market. A second set, including troy weights, verified in 1835. None of these have been officially re-verified. One full set verified for the Borough of Sheffield 30 Sept. 1862, and the weights since re-verified 23 Dec. 1867. Two sets of 13 avoirdupois weights each (from 7 lbs. downwards) verified 9 Dec. 1862, and one of these sets re-verified also on 23 Dec. 1867, six of the weights being renewed. One set was since re-verified 24 Mar. 1868. The full set belonging to the Manor of Eccleshall Bierlow was also re-verified for the Borough of Sheffield on 24 Mar. 1868. There have also been verified for Sheffield, the following auxiliary gas measuring standards: one cubic foot bottle; one cubic foot transferrer; one weight of 62·321 lb.
Twice since 1842	Twice since 1842	Aug. 1866 -	With county set	Only one full set originally verified in 1825, and not since officially re-verified.
- - -	- - -	- - -	- - -	Full set verified in 1834 for the Lord of the Manor, and re-verified in 1859. The inspection since transferred to the East Riding, and the standards re-verified as a county set on 28 May 1868.
- - -	- - -	- - -	- - -	A full set verified in 1835, and on 2 Oct. 1862. Standards and inspection now transferred to Borough of Sheffield.
- - -	- - -	- - -	- - -	These Standards were verified in 1856 for several manors of which the Earl of Dartmouth was Lord. It is stated that the Standards are now used for the Manor of Slaithwaite, being one of the manors for which they were verified. But no return has been made.
28 Aug. 1858 -	28 Aug. 1858 -	- - -	- - -	Five measures of capacity only were verified. The return states duplicates of the quart, pint, gill, and half-gill, as Standards in use, which have never been officially verified.
- - -	- - -	- - -	- - -	No return made. A full set was verified for the Manor of Wakefield in 1826, and has not been re-verified. A second full set was verified for the Town of Halifax and Manor of Wakefield in 1826, re-verified 22 Dec. 1859, and the weights re-verified 13 Mar. 1865. An additional set was verified for the Manor of Wakefield in 1837, re-verified 28 Feb. 1860, and the weights re-verified 7 Aug. 1865. All these sets were for the custody of the steward of the manor.

cubic foot of water.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
	WALES								
Anglesea	County	32	—	—	17	2	—	51	2
	Total for the County of Anglesea	32	—	—	17	2	—	51	2
Brecon	County	16	—	—	10	1	—	27	1
	Brecon, Borough	16	—	—	10	—	—	26	1
	Total for the County of Brecon	32	—	—	20	1	—	53	2
Carmarthen	County	—	—	—	—	—	—	—	—
	Caermarthen, County of Borough	*48*	—	—	*30*	*3*	—	*81*	*3*
	Kidwelly, Borough	16	—	—	8	1	—	25	1
	Llanelly, Parish	—	—	—	—	—	—	—	—
	Total for the County of Caermarthen	64	—	—	38	4	—	106	4
Cardigan	County	16	—	—	10	1	—	27	1
	Total for the County of Cardigan	16	—	—	10	1	—	27	1
Caernarvon	County	80	—	—	35	5	—	120	5
	Pwllheli, Borough	*16*	—	—	—	—	—	*16*	*1*
	Total for the County of Caernarvon	96	—	—	35	5	—	136	6
Denbigh	County	32	—	—	20	2	—	54	2
	Denbigh, Borough	—	—	—	—	—	—	—	—
	Total for the County of Denbigh	32	—	—	20	2	—	54	2
Flint	3 Subdivisions of the County, viz.:—								
	Holywell	16	—	—	10	1	—	81	4
	Mold	16	—	—	10	1			
	Overton	16	—	—	10	1			
	Flint, Borough	*16*	—	—	*5*	*1*	—	*22*	*1*
	Total for the County of Flint	64	—	—	35	4	—	103	5
Glamorgan	4 Subdivisions of the County, viz.:—								
	Merthyr, District	16	—	—	10	—	—	26	4
	Newbridge „	16	—	—	10	1	—	27	
	Ogmore „	16	—	—	10	1	—	27	
	Swansea „	16	—	—	10	1	—	27	
	Cardiff, Borough	—	—	—	—	—	—	—	—
	Swansea, Borough	13	—	—	13	1	—	27	1
	Total for the County of Glamorgan	77	—	—	53	4	—	134	5

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
		WALES.		
May 1859	May 1859			A full set verified in 1826; the weights re-verified in 1847, and both weights and measures re-verified on 4 May 1859. An additional set of avoirdupois weights and seven smaller measures of capacity verified 12 May 1859. One yard only has been officially verified for Anglesea.
13 Nov. 1862	17 Sept. 1867			A full set verified in 1825; re-verified in 1857, the weights on 13 Nov. 1862, and weights and measures last re-verified 28 Jan. 1868.
1859	1859			A set of weights was officially verified 21 Feb. 1852, and has not been since re-verified. No measures have been officially verified for the Borough of Brecon.
				No return made. A full set verified in 1825; the weights re-verified in 1837; both weights and measures in 1860, and in 1866. A second full set was verified in 1847, and re-verified 4 March 1867. The avoirdupois weights of the Borough of Llanelly were re-verified for the county in 1856, and the measures in 1860.
				A complete set, including the avoirdupois weights and the measures, re-verified 27 Jan. 1860. Troy weights were originally verified in 1826; the troy weights have not been re-verified.
				A full set verified in 1825. Standards and inspection transferred to the county in 1856.
4 June 1866	13 Sept. 1860			A full set verified in 1826, and not re-verified. A complete set, including troy weights, verified in 1835; the troy weights and measures not re-verified; the avoirdupois weights re-verified 5 Jan. 1866. An additional full set verified in 1836, and re-verified 11 Jan. 1860.
2 sets in 1858 3 sets in 1860				A full set verified in 1825; the weights re-verified in 1844, 1849, 1858, and 7 Feb. 1864; the measures 30 Nov. 1860. Three additional full sets verified in 1826, and one set in 1835, and were since re-verified; two sets of weights in 1858, and two sets of weights and four sets of measures in 1860. Two sets of weights and one set of measures have been since re-verified on 17 April 1868.
				No return made. A set of weights verified 19 Sept. 1860.
2 sets, 26 Apr. 1859; 1 set, 20 Feb. 1865; short set, 8 Apr. 1865.	26 April 1859	1 set, 13 Mar. 1865		A full set verified in 1826; re-verified on 26 April 1859, and the weights on 20 Feb. 1865. A second set verified on 21 April 1859, and the nine smaller weights re-verified 8 April 1865. An additional full set verified 23 Feb. 1867.
				A set of weights and measures verified for the borough in 1846, and not re-verified. Standards and inspection transferred to the county.
1859		1865		A full set verified in 1825; the weights re-verified 25 Mar. 1858.
8 Dec. 1864	22 Dec. 1864			A set verified in 1835; the measures only re-verified 22 Dec. 1864.
1859		28 Feb. 1865		A set verified in 1850, and re-verified 31 Jan. 1859.
				No return made. A set verified 26 April 1861.
1859	1859			Verified in 1826; re-verified 23 May 1859, and since 11 May 1868.
1859	1859			One set since re-verified in May 1868, and two sets on 20 July 1868.
1859	1859			
1859	1859			
				A full set of avoirdupois and troy weights and a short set of measures of capacity verified in 1826, and not since re-verified. Inspection and Standards transferred to county.
1863	1863			A full set verified in 1826; re-verified 25 July 1826, and since on 7 July 1868.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Merioneth	County	16	—	—	10	1	—	27	1
	Total for the County of Merioneth	16	—	—	10	1	—	27	1
Montgomery	County	16	—	—	10	1	—	27	1
	Total for the County of Montgomery	16	—	—	10	1	—	27	1
Pembroke	County	87	—	—	35	1	—	123	6
	Haverfordwest, Town and County of	16	—	—	10	1	—	27	1
	Tenby, Borough	16	—	—	5	1	—	22	1
	Total for the County of Pembroke	119	—	—	50	3	—	172	8
Radnor	County	16	—	—	10	1	—	27	1
	Rhayader, Borough	—	—	—	—	—	—	—	—
	Total for the County of Radnor	16	—	—	10	1	—	27	1
	SCOTLAND								
Aberdeen	3 Districts of the County, viz.:—								
	1. Aberdeen	16	—	—	10	1	—	} 81	3
	2. Peterhead	16	—	—	10	1	—		
	3. Inverarie	16	—	—	10	1	—		
	Aberdeen, Royal Burgh	32	—	—	10	1	2	45	2
	Total for the County of Aberdeen	80	—	—	40	4	2	126	5
Argyll	County	32	15	—	10	1	—	58	2
	Campbelltown, Royal Burgh	16	—	—	10	1	—	27	1
	Oban, Burgh	16	—	—	7	1	—	24	1
	Total for the County of Argyll	64	15	—	27	3	—	109	4
Ayr	County	32	—	—	20	2	—	54	2
	Ayr, Royal Burgh	*16*	—	—	*10*	*1*	*1*	*28*	*1*
	Irvine, Royal Burgh	16	—	—	7	1	—	24	1
	Kilmarnock, Burgh	16	15	—	10	1	—	42	1
	Total for the County of Ayr	80	15	—	47	5	1	148	5
Banff	Banff, Royal Burgh	16	—	—	10	1	—	27	1
	Total for the County of Banff	16	—	—	10	1	—	27	1
Berwick	County	32	—	—	10	1	—	43	1
	Lauder, Royal Burgh	15	—	—	10	1	—	26	1
	Total for the County of Berwick	47	—	—	20	2	—	69	2

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
6 Mar. 1865	-	-	-	Verified in 1825; re-verified in 1835, weights in 1855; weights and measures 8 Mar. 1860, and the weights again in 1865.
9 July 1863	26 Jan. 1860	-	-	A full set verified in 1826; re-verified in 1834; the weights in 1850 and 1858; the measures in 1860; the weights in 1863, and since on 27 July 1868.
4 Mar. 1868	4 Mar. 1868	11 Apr. 1868	11 Apr. 1868	One full set verified in 1826; re-verified in 1852 and on 26 Jan. 1860. Five additional sets of weights and the five smaller measures of capacity verified in 1851, and not re-verified. (See Haverfordwest.)
-	-	Dec. 1860	-	One full set originally verified 16 Feb. 1826, and re-verified 15 Oct. 1860; since re-verified 4 March 1868.
-	1862	21 Apr. 1868	-	Originally verified 9 Dec. 1862, and not since re-verified.
1865	Measures of capacity 1859; yard 1865.	-	-	Verified in 1848; weights and the five smaller measures of capacity re-verified 17 Sept. 1857; the five larger measures of capacity and the yard re-verified 26 Jan. 1860; the weights re-verified 3 June 1863.
-	-	-	-	No return made. A set of weights and measures verified in 1829, and not since re-verified.
-	-	-	-	SCOTLAND.
Jan. 1867	-	-	-	One full set verified on 11 Nov. 1825; the weights re-verified in 1857, and the full set on 3 Apr. 1865. Three more full sets verified 30 Aug. 1860; the weights re-verified 7 Jan. and 25 Feb. 1867.
-	-	-	-	
-	-	-	-	
3 Apr. 1865; 11 May 1865.	3 Apr. 1860	-	-	Only one set of weights verified 11 May 1865 for the Royal Burgh of Aberdeen. The full set here stated as belonging to the *Burgh* of Aberdeen was originally verified and since re-verified for the *county*.
19 June 1866	6 July 1860	5 July 1867	-	One complete set, including troy weights, re-verified 8 May 1826; the avoirdupois weights and the measures re-verified 5 July 1860, and the weights last re-verified 26 June 1866. The troy weights have not been re-verified; the return stating that they were found correct by the manufacturers, who "did not think "it necessary to have them verified at the Exchequer." Two additional full sets were verified 16 Feb. 1835, but have not been since officially re-verified.
1829	1829	-	-	A full set verified in 1826. The weights since re-verified 10 Feb. 1868.
-	-	-	-	Verified for the Burgh of Oban on 4 March 1867, since the returns were made out.
13 Feb. 1865	-	-	-	Two full sets originally verified 24 Feb. 1859; the weights re-verified on 13 Feb. 1865.
-	-	-	-	No return made. A full set verified in 1826.
12 Apr. 1862	2 Apr. 1862	-	-	A full set verified in 1826, re-verified in 1862; the weights since re-verified 27 April 1868.
June 1862	-	-	-	This set originally verified in 1835. The avoirdupois weights and the measures re-verified on 14 May 1862. The troy weights not re-verified.
22 Dec. 1859	22 Dec. 1859	-	-	Full set verified in 1826; the weights re-verified in 1853, and the full set re-verified 22 Dec. 1859. The Standards have been officially verified for the *burgh* to be delivered to the custody of the Provost; they are now stated to be used by the *county*.
1 set, 18 Apr. 1860	-	2nd set, 29 Dec. 1866	-	Only one full set has been officially verified in 1826; and re-verified as stated 18 Apr. 1860.
1824	1824	-	-	A full set originally verified 4 Jan. 1826, and not since re-verified. The half-dram weight is stated to have been lost.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Bute - -	County - - - - - -	15	—	—	10	1	—	26	1
	Rothsay, Royal Burgh - - -	15	—	—	10	1	—	26	1
	Total for the County of Bute - -	30	—	—	20	2	—	52	2
Caithness - -	County - - - - - -	16	—	—	10	1	—	27	1
	Wick, Royal Burgh - - -	—	—	—	—	—	—	—	—
	Total for the County of Caithness -	16	—	—	10	1	—	27	1
Clackmannan -	County - - - - - -	*16*	*15*	—	*10*	*1*	—	*42*	*1*
	Total for the County of Clackmannan	16	15	—	10	1	—	42	1
Cromarty - -	County - - - - - -	16	15	—	10	1	—	42	1
	Total for the County of Cromarty -	16	15	—	10	1	—	42	1
Dumbarton -	County - - - - - -	34	—	—	16	2	—	52	2
	Dumbarton, Royal Burgh - - -	16	—	—	10	1	—	27	1
	Total for the County of Dumbarton -	50	—	—	26	3	—	79	3
Dumfries - -	County - - - - - -	30	—	—	10	1	—	41	2
	Annan, Royal Burgh - - -	*16*	—	—	*7*	*1*	—	*24*	*1*
	Dumfries, Royal Burgh - - -	16	—	—	10	1	—	27	1
	Sanquhar, Royal Burgh - - -	—	—	—	—	—	—	—	—
	Total for the County of Dumfries -	62	—	—	27	3	—	92	4
Edinburgh -	County - - - - - -	32	—	—	10	2	—	44	2
	Edinburgh, City - - - - -	32	—	*31*	15	1	11	90	2
	Leith, Burgh - - - -	16	—	—	10	1	—	27	1
	Total for the County of Edinburgh -	80	—	*31*	35	4	11	161	5
Elgin - -	County - - - - - -	16	—	—	10	1	—	27	} 1 {
	Elgin, Royal Burgh - - -	31	—	—	17	2	—	50	
	Total for the County of Elgin - -	47	—	—	27	3	—	77	1
Fife - -	County - - - - - -	96	30	—	60	6	—	192	6
	Anstruther East, Royal Burgh - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Burntisland, Royal Burgh - -	16	—	—	10	1	—	27	1

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avordupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
Not known	Not known			A full set verified in 1825, and not since re-verified.
Not known	Not known			A full set verified in 1826, and not since re-verified.
25 Feb. 1867	12 Dec. 1861			A full set verified 12 Dec. 1861; the weights re-verified 25 Feb. 1867.
				A full set verified for the Burgh of Wick in 1835, to be delivered to the custody of the Inspector. It is now stated that there are no Standards there, nor Inspector.
				No return made. A complete set, including troy weights, verified in 1826, and re-verified 26 Nov. 1863.
1824	1824			Verified 8 May 1826; never re-verified.
21 Dec. 1861	21 Dec. 1861	21 Feb. 1862		A full set verified in 1826, and re-verified 21 Dec. 1861; the weights re-verified 17 Dec. 1867. Two additional sets of weights verified 15 Feb. 1850, and not re-verified.
17 Dec. 1867	18 Jan. 1862	27 Feb. 1868		A full set verified in 1834, and re-verified 18 Jan. 1862; the weights re-verified 17 Dec. 1867.
1862				A set of the 14 smaller weights and five smaller measures of capacity verified in 1847. An additional full set of weights verified in 1857, and re-verified 26 May 1862. The 30 weights and five measures have since been re-verified on 7 Dec. 1867. The five larger measures of capacity and the yard have never been verified for the County of Dumfries. See Dumfries Burgh.
				No return made. Verified in 1831, and re-verified 31 Dec. 1863.
1862	Not stated			A complete set, including troy weights, originally verified 2 May 1826. The measures of capacity only since re-verified, on 22 May 1860. The inspection is now under the police, and appears to be incorporated with the county inspection.
				No return made. A full set verified in 1831, to be delivered to the custody of the Provost, and not since re-verified.
16 Aug. 1862		1 June 1867		A full set verified in 1825, the measures only re-verified 7 Aug. 1857. An additional set of weights verified in 1836, and not re-verified. A third set of weights verified 16 April 1857, and re-verified 13 Aug. 1862; since re-verified 28 Sept. 1867.
9 Jan. 1866; 12 Mar. 1866.	9 Jan. 1866; 8 Mar. 1866.			A complete set, including troy weights, verified 30 March 1826, of these the troy weights were re-verified 19 April 1851, but are not stated in the return as being in use. The avoirdupois weights also re-verified in 1851, and again in 1854, and in 1866. A second set of avoirdupois weights with the seven smaller measures of capacity verified in 1854, and re-verified 11 March 1866. The bushel, half bushel, peck, and yard have never been re-verified. Two new sets of avoirdupois weights, from two pounds downwards, and two sets of troy weights, have since been verified on 15 May 1868. Copies of Capt. Kater's Standards were sent to the City of Edinburgh in 1825; and of the restored yard and pound in 1855; these have not been re-verified.
				A full set verified in 1835, and since re-verified 11 May 1868.
Not known	Not known			Only one full set verified for the "Burgh and County of Elgin," in 1826, and since re-verified 26 Aug. 1868.
Avoirdupois. 1 set, 10 Jan. 1865. Troy. 1 set, 25 Nov. 1859. Kinghorn set of troy seldom used.	1 set, 25 Nov. 1859.	Avoirdupois. 2 sets, 10 Mar. 1865. Cupar set, 25 July 1865. Crail set, 12 Oct. 1865. Kinghorn set, 12 Oct. 1865.	Capacity. 2 sets, 10 Jan. 1860.	A full set verified in 1835, and not re-verified. Two additional full sets verified in 1836; one set re-verified 25 Nov. 1859, and a set of troy weights added; the weights of the other set re-verified 10 Jan. 1865. The Standards and inspection of the Burghs of Cupar, Crail, and Kinghorn are now transferred to the county.
				Originally issued in 1826, and re-verified 21 Aug. 1863.
12 Mar. 1860				Full set verified in 1826, and re-verified 12 Mar. 1860.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Fife—*cont.*	Crail, Royal Burgh	—	—	—	—	—	—	—	—
	Cupar, Royal Burgh	—	—	—	—	—	—	—	—
	Dunfermline, Royal Burgh	17	—	—	10	1	—	28	1
	Inverkeithing, Royal Burgh	16	—	—	10	1	—	27	1
	Kinghorn, Royal Burgh	—	—	—	—	—	—	—	—
	Kirkcaldy, Royal Burgh	16	—	—	10	1	—	27	1
	Pittenweem, Royal Burgh	16	—	—	10	1	—	27	1
	St. Andrews, City and Royal Burgh	16	—	—	10	1		27	1
	Total for the County of Fife	209	30	—	130	13	—	382	13
Forfar	County	16	—	—	10	1	—	27	1
	Arbroath, Royal Burgh	16	—	—	10	1	—	27	1
	Brechin, Royal Burgh	29	—	—	17	1	—	47	1
	Dundee, Royal Burgh	22	—	—	20	2	2	46	2
	Forfar, Royal Burgh	16	—	—	7	1	—	24	1
	Montrose, Royal Burgh	12	—	—	10	1	—	23	1
	Total for the County of Forfar	111	—	—	74	7	2	194	7
Haddington	County	48	—	—	24	3	—	75	3
	Berwick, North, Royal Burgh	14	—	—	—	1	—	15	1
	Dunbar, Royal Burgh	15	—	—	7	1	—	23	1
	Total for the County of Haddington	77	—	—	31	5	—	113	5
Inverness	County	64	—	—	40	4	—	108	1
	Inverness, Royal Burgh	16	—	—	10	1	—	27	1
	Total for the County of Inverness	80	—	—	50	5	—	135	2
Kincardine	County	16	—	—	10	1	—	27	1
	Total for the County of Kincardine	16	—	—	10	1	—	27	1
Kinross	County	16	—	—	10	1	—	27	1
	Total for the County of Kinross	16	—	—	10	1	—	27	1
Kirkcudbright	County	17	—	—	10	1	—	28	1
	Kirkcudbright, Burgh	16	—	—	—	—	—	16	1
	Total for the County of Kirkcudbright	33	—	—	10	1	—	44	2
Lanark	Divided into 3 Wards:—								
	Upper Ward	16	—	—	8	1	—	25	
	Middle Ward, divided into 4 Districts:—								
	Airdrie District	16	—	—	8	—	—	24	
	Coatbridge „	16	—	—	8	—	—	24	6
	Hamilton „	31	—	—	18	1	—	50	
	Wishaw „	16	—	—	—	—	—	16	
	Lower Ward	43	—	—	10	2	—	55	
	Airdrie, Burgh	16	15	—	7	5	—	39	1

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
-	-	-	-	A full set (except the half bushel, peck, and half gallon) verified in 1826, and not since officially verified. Standards and inspection transferred to the county.
-	-	-	-	Full set verified in 1826, and not since re-verified. Standards and inspection transferred to the county.
-	-	7 Mar. 1865	-	A full set, including 16 weights only, verified in 1826, and not since officially re-verified.
-	-	25 Apr. 1865	12 Apr. 1865	A full set verified in 1826, and not since officially re-verified.
-	-	-	-	A nearly complete set, including troy weights, but without the three larger measures of capacity, verified in 1835, and not since officially re-verified. Standards and inspection transferred to the county.
Dec. 1859	-	-	-	Originally verified in 1826, and re-verified 22 Dec. 1859.
-	-	25 Apr. 1865	12 Apr. 1865	Originally verified in 1826, and not since officially re-verified. It is stated to have been compared with the County Standards by two Justices of the Peace on 25 Apr. 1865.
22 Dec. 1859	22 Dec. 1859	-	-	Originally verified in 1826, and re-verified 22 Dec. 1859. Weights since re-verified 7 Dec. 1867.
June 1864	-	-	-	This set is stated to be for the Forfar District of the County of Forfar. Two full sets have been officially verified for the county, one in 1826, not since re-verified; and one in 1856, re-verified 9 May 1864.
19 June 1866	19 June 1866	-	-	Originally verified in 1826, and re-verified 11 June 1866.
25 Nov. 1825	25 Nov. 1825	-	-	Only one full set verified for Brechin on 28 Jan. 1826, and not since re-verified.
1 full set, 1825; 1 short set, 1835.	1825	-	-	One full set originally verified in 1825, and since re-verified 3 Aug. 1868. A second full set verified in 1835, and not since re-verified.
-	-	-	-	Originally verified in 1826; not since re-verified.
Not known	Not known	-	-	Full set verified in 1826; not since re-verified.
One of each in Apr. 1860		Two of each in Apr. 1860		One full set only officially verified in 1826, and re-verified 8 Mar. 1860.
-	-	-	-	A full set of weights, together with a short set of measures of capacity, originally verified in 1826, and not since re-verified.
-	-	1860	-	Originally verified in 1826, and not since officially re-verified. Stated to have been compared with the County Standards in 1860, and found correct.
21 June 1860	-	15 Aug. 1860	15 Aug. 1860	Only one full set of 27 Standards has been officially verified for the County of Inverness, originally in 1826, and re-verified 21 June 1860. The 16 weights were re-verified on 23 Dec. 1867.
Dec. 1866	June 1860	-	-	Originally verified in 1826, and re-verified 8 June 1860; weights re-verified 7 Jan. 1867.
12 Aug. 1861	12 Aug. 1861	16 July 1867	-	Originally verified in 1826, and re-verified in 1861. The weights since re-verified 23 Jan. 1868.
6 July 1867	6 July 1867	-	-	One full set verified on 16 Feb. 1826, and not since re-verified. A second full set verified 13 Nov. 1826, and re-verified (except the yard) 6 July 1867.
19 May 1865	Not stated	-	-	This set is for the Stewartry of Kircudbright, and includes the county and burgh. One full set was verified for the county in 1826, re-verified 23 Dec. 1859; and the weights re-verified 20 May 1865; not since been officially re-verified.
21 April 1860	-	-	-	The burgh is now incorporated with the county. Weights since re-verified, 23 Jan. 1868.
-	-	28 Dec. 1866	-	A full set originally verified in 1826 for the County of Lanark, and not since re-verified. A second full set verified on 19 Sept. 1860, together with four sets of weights only; one set of weights was since re-verified on 6 Oct. 1866. Thus only six sets of weights (or 96) and two sets of measures (21) have been verified for Lanarkshire.
-	-	28 Dec. 1866	-	
-	-	28 Dec. 1866	-	
1 set, 6 Oct. 1866	-	28 Dec. 1866	-	
-	-	28 Dec. 1866	-	
Not known	Not known	28 Dec. 1866	28 Dec. 1866	
19 Dec. 1866; troy, Jan. 1864.	9 Jan. 1861	-	-	A complete set of weights, including troy weights, verified in 1844, and re-verified 9 Dec. 1861; the avoirdupois weight, re-verified 9 Dec. 1866. A short set of measures of capacity from the gallon downwards, and a yard, verified in 1850, and also re-verified 9 Jan. 1861.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Lanark—*cont.*	Calton, Burgh	—	—	—	—	—	—	—	—
	Glasgow, City, in three Districts and two Burghs :—								
	Central District	16	15	—	10	1	3	45	1
	Eastern „	16	—	—	8	1	—	25	1
	Western „	16	—	—	8	1	—	25	1
	Calton, Burgh	16	—	—	8	1	—	25	1
	Gorbals, Barony	16	—	—	8	1	—	25	1
	Lanark, Royal Burgh	13	—	—	8	1	*1*	23	1
	Patrick, Burgh	—	—	—	—	—	—	—	—
	Total for the County of Lanark	247	30	—	109	11	4	401	13
Linlithgow	County	*16*	—	—	*10*	*1*	—	*27*	*1*
	Total for the County of Linlithgow	16	—	—	10	1	—	27	1
Nairn	Burgh	16	—	—	10	1	—	27	1
	Total for the County of Nairn	16	—	—	10	1	—	27	1
Orkney	County	16	15	—	10	1	—	42	1
	Total for the County of Orkney	16	15	—	10	1	—	42	1
Peebles	County	16	—	—	7	1	—	24	1
	Peebles, Royal Burgh	16	—	—	7	1	—	24	1
	Total for the County of Peebles	32	—	—	14	2	—	48	2
Perth	County	17	—	—	10	1	—	28	1
	Perth, City or Burgh	16	—	—	10	1	*1*	28	1
	Culross, Royal Burgh	16	—	—	10	—	—	26	1
	Total for the County of Perth	49	—	—	30	2	1	82	3
Renfrew	County	32	15	—	20	2	—	69	3
	Greenock, Burgh	16	—	—	10	1	1	28	1
	Paisley, Burgh	17	15	—	10	1	—	43	1
	Pollockshiels, Burgh	—	—	—	—	—	—	—	—
	Renfrew, Royal Burgh	16	—	—	7	1	—	24	1
	Total for the County of Renfrew	81	30	—	47	5	1	164	6
Ross	County	100	—	—	70	7	—	177	2
	Tain, Royal Burgh	16	—	—	10	1	—	27	1
	Total for the County of Ross	116	—	—	80	8	—	204	3
Roxburgh	County	32	—	—	17	1	—	50	1
	Total for the County of Roxburgh	32	—	—	17	1	—	50	1

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
- - -	- - -	- - -	- - -	Included in city of Glasgow.
22 Dec. 1859 -	22 Dec. 1859 -	13 June 1866 -	13 June 1866 -	A complete set originally verified in 1826, re-verified on 22 Dec. 1859, and since re-verified 17 April 1868.
25 Nov. 1859 -	25 Nov. 1859 -	13 June 1866 -	13 June 1866 -	Originally verified in 1849, and re-verified 25 Nov. 1859.
12 March 1866 -	12 March 1866 -	- - -	- - -	Originally verified in 1849, and re-verified 25 Nov. 1859; since re-verified 11 March 1866.
25 Nov. 1859 -	25 Nov. 1859 -	- - -	- - -	Originally verified in 1841; re-verified in 1849 and 1859; since re-verified 3 April 1868.
25 Nov. 1859 -	25 Nov. 1859 -	- - -	- - -	Originally verified in 1844; re-verified in 1849 and in 1859.
- - -	- - -	- - -	- - -	A full set verified in 1826, and not since re-verified.
- - -	- - -	- - -	- - -	A set of 14 weights, from 14 lbs. downwards, verified in 1856, and not since re-verified. It is stated that they have never been used, the inspection being exercised by the county police.
- - -	- - -	- - -	- - -	No return made. A full set verified in 1826, and re-verified 6 Dec. 1863.
- - -	- - -	- - -	- - -	A full set verified in 1826. No inspection exercised in 1866, when a police inspector was appointed inspector of weights and measures. Standards since re-verified 23 Feb. 1867.
21 Dec. 1859 -	21 Dec. 1859 -	- - -	- - -	Complete set verified in 1826, and re-verified 21 Dec. 1859.
17 June 1867 -	26 March 1860 -	- - -	- - -	Originally verified in 1825, and re-verified in 1860; weights re-verified in 1867.
17 June 1867 -	- - -	- - -	- - -	Originally verified in 1826; re-verified 1 March 1860, and weights re-verified in 1867.
3 April 1867 -	24 May 1860 -	- - -	- - -	A full set verified in 1826; re-verified in 1860, and weights in 1867.
17 June 1867 -	7 May 1861 -	- - -	- - -	Verified in 1826; re-verified in 1861, and weights in 1867.
- - -	- - -	- - -	- - -	A full set was verified on 7 Nov. 1826, and has not been since re-verified. The town clerk states that they are never used, and that no inspector is appointed.
30 March 1866 -	30 March 1866 -	30 March 1866 -	30 March 1866 -	A complete set, including troy weights, verified in 1826 and 1835, except the half bushel; re-verified 24 Aug. 1860, except the bushel. A second full set verified in 1834; re-verified in 1860 and in 1866.
- - -	- - -	- - -	- - -	A full set verified 24 July 1867, since the returns were made out.
- - -	- - -	- - -	- - -	A full set verified in 1835, and re-verified as a complete set, including troy weights, in 1853; re-verified 6 June 1860; a duplicate half-dram weight was included in the set of avoirdupois weights verified in 1835, but it has not been since re-verified. The return states also 18 avoirdupois weights and eight measures of capacity, *copies of the local standards*, as being in use; but they have never been officially verified.
- - -	- - -	- - -	- - -	Return states there is no inspector. Full set verified in 1835, and re-verified in 1840.
26 Jan. 1860 -	26 Jan. 1860 -	- - -	- - -	A full set verified in 1835, and re-verified in 1860.
21 June 1860 -	- - -	22 July 1861 -	- - -	Two full sets only have been officially verified; one set in 1826, re-verified in 1849 and 1860, and the weights since re-verified 1 Aug. 1868; the other in 1852, for the Island of Lewis, Wester Ross, re-verified in 1860, and the weights also in 1868. The statement that seven sets are in use is not reconcileable with the Books of the Department.
Aug. 1860 -	- - -	- - -	- - -	Full set verified in 1835; re-verified 2 June 1860.
Sept. 1862 -	Sept. 1862 -	Nov. 1862 -	Nov. 1862 -	Only one full set of 27 Standards has been officially verified for the County of Roxburgh, originally in 1825; re-verified 25 Oct. 1862; the weights since re-verified 23 Dec. 1867.

Appendix III.—*continued.*—Abstract A. of Returns from the Local Inspectors of Weights

County.	District, City, Town, &c.	Standards used by Inspectors - - -							
		Number of Standard Weights.			Number of Standard Measures.			Total.	
		Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Selkirk - -	County and Royal Burgh - - -	17	—	—	10	1	—	28	1
	Total for the County of Selkirk -	17	—	—	10	1	—	28	1
Stirling - -	County - - - - - -	16	—	—	10	1	—	27	1
	Falkirk, Parliamentary Burgh - -	16	8	—	10	1	—	35	1
	Stirling, Royal Burgh - - -	16	—	—	10	1	—	27	1
	Total for the County of Stirling -	48	8	—	30	3	—	89	3
Sutherland -	County - - - - - - -	16	—	—	10	1	—	27	1
	Total for the County of Sutherland	16	—	—	10	1	—	27	1
Wigtown - -	County and Royal Burgh - -	32	—	—	7	1	—	40	2
	Stranraer, Royal Burgh - - -	16	—	—	10	1	—	27	1
	Total for the County of Wigtown -	48	—	—	17	2	—	67	3
Zetland - -	Lordship - - - - - -	*16*	—	—	*10*	*1*	—	*27*	*1*
	Total for the County of Zetland -	16	—	—	10	1	—	27	1
Jersey, Island of	- - - - - - -	1	—	—	1	1	—	3	1
Man, Isle of -	- - - - - - -	*16*	—	—	*10*	*1*	—	*27*	*1*

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Standards used by Inspectors.				Remarks by the Warden of the Standards.
Date when last officially verified.		Date when last locally re-verified by Inspector.		N.B.—These remarks are founded upon the information contained in the Books of the Standards Department; the number of Standards in use in those places from which no returns have been received has been inserted in *italic*. A *full* set is understood to include avoirdupois weights and measures of capacity and length; a *complete* set includes also troy weights.
Weights.	Measures.	Weights.	Measures.	
June 1867	May 1860	-	-	A full set verified in 1826; re-verified 21 April 1860, and weights 17 June 1867.
6 June 1860	6 June 1860	-	-	Verified in 1826; re-verified in 1860.
-	-	-	-	A complete set verified in 1835. Troy weights not re-verified; avoirdupois weights and the measures re-verified 5 Sept. 1861.
About 1830	-	-	-	Originally verified in 1826, and not re-verified since. It is stated that the inspector for the burgh is also inspector for the county, and uses the County Standards to save the expense of verification.
8 June 1863	8 June 1863	-	-	Originally verified in 1826; re-verified in 1863.
-	-	-	-	Originally verified in 1826; re-verified 19 April 1861, and weights on 1 Oct. 1867. An additional set of new weights verified 3 Oct. 1867.
July 1867	July 1867	-	-	Originally verified in 1826, and re-verified on 14 July 1867.
-	-	-	-	No return made. Full set verified in 1826; re-verified 9 Dec. 1866.
13 April 1844	13 April 1844	*See* Warden's Remarks	-	It appears by the return furnished by Col. Le Couteur, the Viscount or High Sheriff of Jersey, that the following additional Standards are also used in Jersey. None of these additional Jersey Standards have been compared at the Exchequer or Board of Trade, viz.:— Weights.—Jersey pound avoirdupois of 16 ounces = 7561 grains Imperial. The same weight as the "livre de la Vicomte de l'Eau," or the ancient Standard of Rouen (Marc de Rouen). Jersey 52 lbs. avoirdupois, 393,084½ grains Imperial; and a nest of Jersey Standards from 52 lbs. to ½ oz. Measures of capacity.—The estendard du chasteau or cabot =4 gallons, 1 quart, 3 gills, Imperial, or 10 Jersey pots, as stated in an Act of the Jersey Court on 19 Jan. 1625. The Jersey quart = $\frac{1}{20}$th estendard du chasteau. Jersey measures of a pot, pint, half-pint, noggin, and half-noggin, inexact and of modern make.

	Pots.	pints.	noggins.
Large cabot for barley - -	12	3	1½
Measure for oysters - -	56	0	0
„ potatoes and coals -	9	2½	0
„ apples - -	0	2	0
The sixtonnier - - -	2	0	2⅔

Measures of length.—10 ft. rod for inspection of roads.
The aune or ell of 4 feet.
The Jersey pound of 16 ounces, and the cabot, were legalized by Acts of the Royal Court of Jersey on 11 Dec. 1593, 7 Mar. 1617, and 19 Jan. 1625, which were confirmed by the Sovereign in Council in 1717.

-	-	*See* Warden's Remarks	-	Full set originally verified for the Isle of Man in 1840, and has not been re-verified. The Standards were delivered in 1840 into the custody of the Clerk of the Rolls. The regulation of weights and measures in the Isle of Man is in the hands of an officer called Regulator of Weights and Measures for the whole island, and four other inspecting officers. Returns have been received from the Regulator and from the High Bailiff of Douglas, each of whom has sub-standards in use, "verified by "the Regulator of Weights and Measures under a local Act "of Tynwald" (or local Parliament of the Island).

Appendix III.—*continued.*

SUMMARY OF ABSTRACT A.

ENGLAND.

Standards used by Inspectors.

Counties.	Number of Standard Weights.			Number of Standard Measures.			Total.	
	Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Bedford	80	—	—	50	5	—	135	5
Berks	201	—	—	120	12	1	334	12
Bucks	140	15	—	60	8	—	223	18
Cambridge	154	15	—	90	9	—	268	10
Chester	240	15	—	139	15	—	409	15
Cornwall	234	—	—	137	14	—	385	15
Cumberland	126	—	—	78	6	1	211	8
Derby	222	—	—	135	12	—	369	14
Devon	394	—	—	239	24	1	658	25
Dorset	223	—	—	138	14	—	375	14
Durham	251	30	—	160	16	—	457	16
Essex	320	—	—	200	20	—	540	20
Gloucester	150	—	—	98	10	2	260	10
Hants	304	45	—	148	18	3	518	20
Hereford	76	—	—	40	5	—	121	5
Herts	144	—	—	90	9	—	243	9
Huntingdon	74	—	—	40	5	—	119	5
Kent	584	74	—	355	35	1	1,049	37
Lancaster	791	60	124	390	40	22	1,427	52
Leicester	157	—	—	90	9	—	256	10
Lincoln	367	—	—	188	24	3	582	24
Middlesex	261	90	31	145	14	58	599	18
Monmouth	64	—	—	29	3	2	98	4
Norfolk	247	30	—	139	14	3	433	16
Northampton	144	—	—	90	9	3	246	9
Northumberland	201	97	—	109	10	—	417	13
Nottingham	180	—	—	95	10	—	285	10
Oxford	222	15	—	132	9	—	378	15
Rutland	32	—	—	10	1	—	43	2
Salop	112	30	—	69	7	1	219	7
Somerset	373	15	62	212	20	4	686	21
Stafford	188	30	27	115	11	—	371	12
Suffolk	347	15	—	214	22	—	598	22
Surrey	183	—	27	95	12	10	327	12
Sussex	296	85	—	174	16	2	573	19
Warwick	220	—	62	121	12	3	418	14
Westmoreland	32	—	—	20	2	—	54	2
Wilts	180	15	—	70	8	—	273	12
Worcester	207	131	—	129	12	1	480	13
York	1,171	40	31	677	65	15	1,999	75
Total for England	9,882	847	364	5,630	567	136	17,436	640

WALES.

Anglesea	32	—	—	17	2	—	51	2
Brecon	32	—	—	20	1	—	53	2
Carmarthen	64	—	—	38	4	—	106	4
Cardigan	16	—	—	10	1	—	27	1
Carnarvon	96	—	—	35	5	—	136	6
Denbigh	32	—	—	20	2	—	54	2
Flint	64	—	—	35	4	—	103	5
Glamorgan	77	—	—	53	4	—	134	5
Merioneth	16	—	—	10	1	—	27	1
Montgomery	16	—	—	10	1	—	27	1
Pembroke	119	—	—	50	3	—	172	8
Radnor	16	—	—	10	1	—	27	1
Total for Wales	580	—	—	308	29	—	917	38

SCOTLAND.

Aberdeen	80	—	—	40	4	2	126	5
Argyll	64	15	—	27	3	—	109	4
Ayr	80	15	—	47	5	1	148	5
Banff	16	—	—	10	1	—	27	1
Berwick	47	—	—	20	2	—	69	2
Bute	30	—	—	20	2	—	52	2
Caithness	16	—	—	10	1	—	27	1
Clackmannan	16	15	—	10	1	—	42	1

Appendix III.—*continued.*—Summary of Abstract A.—Scotland—*continued.*

Counties.	Standards used by Inspector.							
	Number of Standard Weights.			Number of Standard Measures.			Total.	
	Avoirdupois.	Troy.	Bullion.	Capacity.	Length.	Gas.	Number of Standards.	Number of Sets and Indentures.
Cromarty	16	15	—	10	1	—	42	1
Dumbarton	50	—	—	26	3	—	79	3
Dumfries	62	—	—	27	3	—	92	4
Edinburgh	80	—	31	35	4	11	161	5
Elgin	47	—	—	27	3	—	77	1
Fife	209	30	—	130	13	—	382	13
Forfar	111	—	—	74	7	2	194	7
Haddington	77	—	—	31	5	—	113	5
Inverness	80	—	—	50	5	—	135	2
Kincardine	16	—	—	10	1	—	27	1
Kinross	16	—	—	10	1	—	27	1
Kircudbright	33	—	—	10	1	—	44	2
Lanark	247	30	—	109	11	4	401	13
Linlithgow	16	—	—	10	1	—	27	1
Nairn	16	—	—	10	1	—	27	1
Orkney	16	15	—	10	1	—	42	1
Peebles	32	—	—	14	2	—	48	2
Perth	49	—	—	30	2	1	82	3
Renfrew	81	30	—	47	5	1	164	6
Ross	116	—	—	80	8	—	204	3
Roxburgh	32	—	—	17	1	—	50	1
Selkirk	17	—	—	10	1	—	28	1
Stirling	48	8	—	30	3	—	89	3
Sutherland	16	—	—	10	1	—	27	1
Wigtown	48	—	—	17	2	—	67	3
Zetland	16	—	—	10	1	—	27	1
Total for Scotland	1,896	173	31	1,028	106	22	3,256	106
England	9,882	847	364	5,630	567	136	17,436	640
Wales	580	—	—	308	29	—	917	38
Scotland	1,896	173	31	1,028	106	22	3,256	106
Jersey	1	—	—	1	1	—	3	1
Isle of Man	16	—	—	10	1	—	27	1
TOTAL FOR GREAT BRITAIN	12,375	1,020	395	6,977	704	158	21,639	786

Standards Department,
October 29, 1868.

H. W. Chisholm,
Warden.

Appendix III.—*continued.*

ABSTRACTS of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in GREAT BRITAIN for the Year ended December 31, 1866—*continued.*

ABSTRACT B.—NUMBER of BALANCES used by INSPECTORS ; when adjusted ; and AMOUNT of ERROR detected by each BALANCE.

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances.				
					With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
BEDFORDSHIRE	4 Subdivisions of the County.	12	Once in 5 yrs.	July 1867	12 gr.	6 gr.	2 gr.	—	—
	Bedford, Borough	3	Twice a year	May 7, 1867	½ dr.	½ dr.	—	—	—
	Luton, Manor	—	None. Standards sold and proceeds thereof applied in purchase of sacramental plate.						
	Woburn, Manor	—	Inspection transferred to County.						
	Total for County of Beds	15							
BERKSHIRE	7 Subdivisions of the County.	—	Not stated.	Not stated.	—	—	—	—	—
	Abingdon, Borough	2	Jan. 27, 1826	Dec. 4, 1861	The smallest amount possible will turn them.				
	Maidenhead, Borough	3	- - -	Not for 6 years.	—	—	—	—	—
	Newbury, Borough	—	No return made.						
	Reading, Borough	—	No return made.						
	Wallingford, Borough	—	Inspection transferred to the County.						
	Windsor, Borough	—	Not stated.						
	Wokingham, Borough	—	Inspection transferred to County.						
	Farringdon, Manor	—	No return made.						
	Total for County of Berks	5							
BUCKS	6 Subdivisions of the County.	18	Whenrequired	Mar. 1867.	1 dr.	½ dr.	½ dr.	¼ dr.	¼ gr.
	Buckingham, Borough	3	Every 5 yrs.	Oct. 1861.	—	—	—	—	—
	Wycombe, Borough	4	Annually	- - -	½ dr.	¼ dr.	—	—	—
	Winslow, Manor	—	Inspection transferred to County.						
	Total for County of Bucks	25							
CAMBRIDGE	4 Subdivisions of the County.	12	Whenrequired	June 1867	The weight of a postage stamp.				
	Cambridge, Borough	—	No return made.						
	Ely, Liberty of Island of	—							
	Wisbech, Borough	4	About once a year.	May 29, 1867	6 gr.	2 gr.	1 gr.	¼ gr.	$\frac{1}{10}$ gr.
	Total for County of Cambridge	16							
CHESHIRE	10 Subdivisions of the County.	27	Before using	- - -	½ gr. to ½ oz.	½ gr. to 1 dr.	½ gr. to ½ dr.	¼ gr. to ½ dr.	¼ gr. to ½ gr.
	Birkenhead, Town	—	Not stated.	—	—	—	—	—	—
	Chester, City and Borough	4	Every 2 yrs.	Feb. 1866	Balances do not indicate any error.				
	Congleton, Borough	3	- - -	June 8, 1863, new	—	—	—	—	—
	Macclesfield, Borough	—	No return made.						
	Stockport, Borough	6	Yearly	Mar. 3, 1865.	½ dr.	—	—	—	—
	Total for County of Chester	40							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
CORNWALL	6 Subdivisions of the County.	12	Whenrequired	1867	2½ dr.	½ dr.	—	—	—
	Bodmin, Borough	3	Quarterly	1868	½ dr.	5 gr.	1 gr.	—	—
	Falmouth, Borough	2	Not stated	- - -	1 dr.	2 gr.	2 gr.	1 gr.	—
	Helstone, Borough	3	Once a month	1867	1 dr.	—	—	—	—
	Launceston, Borough	—	No return made.						
	Liskeard, Borough	2	Not stated.	—	—	—	—	—	—
	Penryn, Borough	2	Not required.	—	—	—	—	—	—
	Penzance, Borough	3	—	—	—	—	—	—	—
	St. Germans, Borough	—	Inspection transferred to County.						
	St. Ives, Borough	2	Not stated	1866	—	½ dr.	¾ dr.	1/16 dr.	—
	Truro, Borough	2	Once a year	1867	1 dr.	„	½ dr.	½ dr.	—
	Total for County of Cornwall	31							
CUMBERLAND	6 Subdivisions of the County.	18	Every 5 yrs.	1863	½ dr.	½ dr.	½ dr.	½ dr.	—
	Carlisle, City	3	„	July 1865	„	„	„	„	½ dr.
	Workington, Town	4	Not stated.	—	—	—	—	—	—
	Total for County of Cumberland	25							
DERBY	13 Subdivisions of the County.	30	Every 3 and 5 years before using.	1864, 1865, 1867.	½ dr. to 4 dr.	½ dr.	½ dr.	—	—
	Chesterfield, Borough	—	Inspection transferred to County.						
	Derby, Borough	—	No return made.						
	Glossop, Borough	—	Inspection transferred to County.						
	Total for County of Derby	30							
DEVON	12 Subdivisions of the County.	31	Every 2, 3, and 5 yrs. when required.	1859, 1862, 1863, 1864, 1865, 1866.	½ dr. to 3 dr.	11 gr. to 1 dr.	5 gr. to ½ dr.	1 gr. to ½ dr.	—
	Barnstaple, Borough	—	No return made.						
	Bideford, Town	—	No return made.						
	Bradninch, Borough	2	- - -	Aug. 21, 1863.	—	—	—	—	—
	Dartmouth, Borough	—	No return made.						
	Devonport, Borough	3	Whenrequired	- - -	½ dr.	—	—	—	—
	Exeter, City and County	—	No return made.						
	Exmouth, Town	—	No return made.						
	Great Torrington, Town	—	Inspection for Borough discontinued.						
	Holsworthy, Town and Manor of.	2	Once in 3 yrs.	Aug. 7, 1863	The smallest amount of error.				
	Ilfracombe, Borough	—	Inspection transferred to County.						
	Molton, South, Borough	3	Once in 5 yrs.	April 1862	14 gr.	5 gr.	2 gr.	1 gr.	—
	Okehampton, Borough	—	Inspection transferred to County.						
	Plymouth, Borough	2	Constantly	- - -	¼ dr.	½ gr.	½ gr.	½ gr.	½ gr.
	Stoke Damerel, Parish	—	No return made. See Devonport, Borough.						
	Stonehouse, East, Parish	—	No return made.						
	Tiverton, Borough	2	Whenrequired	- - -	1 dr.	½ dr.	3 gr.	2 gr.	—
	Totnes, Borough	1	Not stated	6 years ago	Not stated.				
	St. Sidwell, Manor	—	Inspection of Weights and Measures under the Courts Leet discontinued in 1862.						
	Tavistock, Borough	—	Inspection transferred to County.						
	Total for County of Devon	46							
DORSET	9 Subdivisions of the County.	27	Every 5 yrs.	Feb. 1865.	2 dr.	½ dr.	¼ dr.	—	—
	Bridport, Borough	—	Inspection transferred to County.						
	Dorchester, Borough	3	Every 3 mths.	Jan. 13, 1868	½ dr.	2 gr.	1 gr.	—	—
	Lyme Regis, Borough	2	Not known	Nov. 1866	1 dr.	¼ dr.	A postage stamp.		
	Poole, Town and County	2	Whenrequired	Not known	84 gr.	39 gr.	10 gr.	1 gr.	—
	Weymouth, Borough	—	No return made.						
	Gillingham, Liberty and Manor.	—	„						
	Total for County of Dorset	34							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances.				
					With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
DURHAM -	12 Subdivisions of the County.	35	Whenrequired	1866	1½ dr.	½ dr.	1 gr.	1 gr.	—
	Gateshead, Borough -	4	Yearly	Feb. 1867	Not stated.				
	Stockton-on-Tees, Borough	3	Not stated	June 1866	½ dr.	No error can be detected.			
	South Shields, Borough -	3	Twice a year	July 1867	½ dr.	3 gr.	1 gr.	—	—
	Sunderland, Borough -	3	Occasionally	Not stated	2 gr.	2 gr.	½ gr.	¼ gr.	—
	Total for County of Durham -	48							
ESSEX - -	15 Subdivisions of the County.	45	Every 3 and 5 years.	1858, 1859, 1864, 1865, 1867.	3 gr. to 1 dr.	2 gr. to ½ dr.	½ gr. to ½ dr.	½ gr. to $\frac{1}{16}$ dr.	¼ gr. to $\frac{1}{16}$ dr.
	Colchester, Borough -	3	Once a quarter	Feb. 18, 1865	,,	1 gr.	½ gr.	¼ gr.	—
	Maldon, Borough - -	—	No return made.						
	Harwich, Borough - -	3	- - -	Cannot say	None	½ dr.	None	None	None
	Havering atte Bower, Liberty of.	3	Once in 3 mos.	June 20, 1867	15 gr.	2 gr.	1 gr.	—	—
	Saffron Walden, Borough	3	Every 5 yrs.	July 27, 1866	Not any.				
	Wetherfield, Manor -	—	No Standards in use.						
	Total for County of Essex - -	57							
GLOUCESTERSHIRE.	8 Subdivisions of the County.	19	Yearly	1860, 1867, 1868, and not known.	½ dr. to 2 dr.	½ dr. to 1 dr.	1 gr. to ½ dr.	1 gr. to ½ dr.	—
	Bristol. *See* Somerset.								
	Cheltenham, Borough -	2	Once in 3 yrs.	Sept. 17, 1866	¼ oz.	1 dr.	½ dr.	¼ dr.	—
	Cirencester, Town and Borough.	—	No return made. Inspection probably transferred to County.						
	Gloucester, City and County of a City and Borough.	2	Cannot say	- - -	2 dr.	1 dr.	½ dr.	—	—
	Tewkesbury, Borough -	3	Not stated	July 1867	½ dr.	—	—	—	—
	Wotton-under-Edge, Town	—	No return made.						
	Bisley, Manor - -	—	Courts Leet no longer held, and inspection transferred to County.						
	Churchdown, Manor -								
	Cirencester, 7 Hundreds of Manor.								
	Hempstede, Manor -								
	Presbury, Manor - -								
	Stow-in-the-Wold, Manor								
	Nether Swell, Manor -								
	Total for County of Gloucester -	26							
HANTS - -	14 Subdivisions of the County.	28	Every 4 yrs.	July 1864	Not stated.				
	Andover, Borough -	2	Not stated.	—	—	—	—	—	—
	Basingstoke, Town -	3	- - -	Jan 27, 1860	1 dr.	½ dr.	—	—	—
	Newport, Isle of Wight, Borough.	—	Inspection transferred to County of Hants.						
	Portsmouth, Borough -	4	Once a year	Aug. 27, 1866	½ dr.	3 gr.	1 gr.	⅕ gr.	·1 gr.
	Ryde, Isle of Wight, Town	—	No return made.						
	Southampton, Borough -	—	,,						
	Winchester, City - -	—	,,						
	Stockbridge, Borough and Manor.	—	,,						
	Total for County of Hants - -	37							
HEREFORDSHIRE.	9 Subdivisions of the County.	4	The same time as the weights.	April 21, 1863 and May 23, 1866	Apparently correct.				Nil.
	Hereford, City and Borough	2	Not stated	Feb. 23, 1867	—	—	—	—	—
	Leominster, Borough -	3	Uncertain	Dec. 17, 1867	½ dr.	½ dr.	½ dr.	½ dr.	½ dr.
	Total for County of Hereford -	9							
HERTFORDSHIRE.	The County - - -	6	Every 5 yrs.	1866	½ dr.	—	—	—	—
	Bishop's Stortford, Town	—	No return made.						
	Hemel Hempsted, Town -	—	,,						
	Hertford, Borough - -	—	Not stated.						
	Hitchin, Town - -	—	No return made.						
	St. Alban's, Borough -	3	New in 1863.	—	—	—	—	—	—
	Cheshunt, Manor - -	7	Not stated	May 24, 1856	The amount of error is in every instance inappreciable.				
	Total for County of Herts - -	16							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Huntingdonshire.	4 Subdivisions of the County.	10	Whenrequired	1867	½ dr.	—	—	—	—
	Huntingdon, Borough -	—	—	Inspection transferred to County.					
	Total for County of Huntingdon -	10							
Kent - -	17 Subdivisions of the County.	52	Every 3, 5, 7, or 10 years.	1859, 1862, 1863, 1864, 1865, 1866, 1867.	½ dr. to 2 dr.	2 gr. to a feather.	⅛ dr. to ½ dr.	1 gr. to ½ dr.	—
	Bexley, Parish - -	—		Transferred to County.					
	Canterbury, City - -	3	Not known	May 17, 1867	Not known.				
	Chatham, Town - -	—		No return made.					
	Dartford, Parish - -	—		No return made. Inspection probably transferred to County.					
	Deal, Town - - -	2	No record kept.		3 dr.	1 dr.	—	—	—
	Dover, Borough - -	—		No return made.					
	Faversham, Borough -	3	Once in 3 yrs.	April 1864	—	—	—	—	—
	Folkestone, Borough -	3	Not stated	Feb. 1859	½ oz.	¼ oz.	1 dr.	½ dr.	—
	Gravesend and Milton, Borough.	3	Every 5 yrs.	Sept. 20, 1864	—	—	—	—	—
	Hythe, Borough - -	2	Not stated	June 15, 1861	—	—	—	—	—
	Lydd, Borough - -	2	Not stated.	—	—	—	—	—	—
	Maidstone, Borough -	3	Not stated	May 20, 1867	—	—	—	—	—
	Queensboro', Borough -	3	Not since 1826	- - -	¼ oz.	1 dr.	—	—	—
	Ramsgate, Town - -	—	Not stated.	—	—	—	—	—	—
	Rochester, City - -	4	Whenrequired	1867	1 dr.	½ dr.	1 gr.	½ gr.	—
	Romney, New, Borough -	3	Not stated.	—	—	—	—	—	—
	Sandwich, Borough -	3	Not stated.	—	—	—	—	—	—
	Sheppey, Parish of Minster, in.	—		Inspection transferred to County.					
	Tenterden, Borough -	3	Every 5 yrs.	Aug. 1865	1 gr.	1 gr.	A very small error.		
	Woolwich, Parish of St. Mary.	—		No return made.					
	Brasted, Manor - -	1	Not stated	June 1862	Not stated.				
	Lewisham, Manor - -	3	Whenrequired	Sept. 24, 1858	½ dr.	—	—	—	—
	Swancombe, Manor -	—		No return made.					
	Total for County of Kent - -	93							
Lancashire -	17 Subdivisions of the County.	77	Whenrequired	1857, 1861, 1862, 1863, 1864, 1865, 1866, 1867.	1 gr. to ½ dr.	½ gr. to ½ dr.	½ gr. to ½ dr.	⅛ gr. to ½ dr.	⅛ gr.
	Ashton-under-Lyne, Borough.	4	Monthly	Aug. 13, 1867	1 dr.	3 gr.	2 gr.	1 gr.	Not stated.
	Accrington, Town - -	—		No return made.					
	Blackburn, Borough -	3	Once in 3 yrs.	Sept. 28, 1864	2 gr.	1 gr.	½ gr.	¼ gr.	—
	Bolton, Borough - -	6	Every 5 yrs.	1865	1 dr.	4 gr.	1½ gr.	½ gr.	—
	Clitheroe, Borough -	3	When used	April 4, 1868	No decimal weights to ascertain this.				
	Lancaster, Borough -	—		No return made.					
	Liverpool, Borough -	24	Twice a year	1867	3 gr.	2 gr.	1 gr.	½ gr.	1/25 gr.
	Manchester, Borough -	32	Every 4 mths.	Aug. 10, 1867	„	1 gr.	5/10 gr.	1/10 gr.	1/10 gr.
	Oldham, Borough - -	7	Every 4 yrs.	Dec. 2, 1865	1 dr.	Scarcely perceptible.			
	Preston, Borough - -	3	Every 5 yrs.	July 27, 1865	4 gr.	2 gr.	1 gr.	½ gr.	—
	Salford, Borough - -	5	Whenrequired	New in 1864	1 dr.	6 gr.	6 gr.	1 gr.	—
	Staleybridge, Borough -	3	Every 4 yrs.	Jan. 1864	—	—	—	—	—
	Warrington, Borough -	—		No return made.					
	Wigan, Borough - -	3	Every 3 mths.	Mar. 30, 1868	½ dr.	¼ dr.	1 gr.	¼ gr.	—
	Bury Market, Borough -	3	Every 5 yrs.	Mar. 22, 1866	—	—	—	—	—
	Manchester, Manor -	—		Inspection transferred to Borough Manchester previously to 1846.					
	Rochdale, Manor - -	—		No return made.					
	Total for County of Lancaster -	173							
Leicestershire.	7 Subdivisions of the County.	24	Whenrequired	Not stated	1 dr.	3 to 7 gr.	1 gr. to 3 gr.	¼ gr.	—
	Leicester, Borough - -	4	- - -	Jan. 1865	Smallest error can be detected.				
	Total for County of Leicester -	28							
Lincolnshire	The County divided into 3 Ridings or Parts:—								
	I. Parts of Lindsey -	24	Every 10 yrs. or oftener if required.	Between 1863 and 1866.	2 dr.	½ dr.	1 gr.	½ gr.	—

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Lincolnshire —*cont.*	II. Parts of Holland -	6	Every 10 yrs.	Between 1864 and 1865.	2 dr.	½ dr.	1 gr.	½ gr.	—
	III. Parts of Kesteven -	12	Every 10 yrs. or oftener if required.	Oct. 1865	"	"	"	"	—
	Boston, Borough - -	5	Occasionally	- - -	"	"	"	—	—
	Grantham, Borough -	3	Once a month	Aug. 6, 1867	15 gr.	2 gr.	—	½ gr.	—
	Great Grimsby, Borough	—	No return made.						
	Lincoln, City and County of City.	4	Every 5 yrs.	Mar. 28, 1866	½ dr.	Or less with any of these weights.			
	Louth, Borough - -	3	Yearly	1867	4 dr.	1 dr.	½ dr.	½ dr.	—
	Spalding, Borough - -	2	Once in 4 yrs.	1864	½ dr.	½ dr.	"	"	—
	Stamford, Borough -	3	Not stated	1860	"	2 gr.	1 gr.	1 gr.	—
	Alford, Manor - -	—	Transferred to County.						
	Total for County of Lincoln -	62							
Middlesex -	4 Subdivisions of the County, viz.:—								
	Tower Hamlets - -	10	Monthly	April 1868	¼ oz.	1 dr.	½ dr.	1 gr.	½ gr.
	Clerkenwell - -	9	"	Sept. 24, 1867	2 dr.	½ dr.	"	Less than ½ dr.	Not used.
	Bloomsbury - -	10	"	Aug. 17, 1867	"	"	"	"	"
	Brentford - - -	8	Every 3 mths.	Mar. 25, 1868	1 dr.	"	"	"	—
	Chelsea, Parish of St. Luke	—	Inspection transferred to County.						
	Islington, Parish of St. Mary.	—	No return made.						
	Kensington, Parish of St. Mary Abbott's.	—	Transferred to County.						
	London, City - - -	6	Once a year	Aug. 20, 1867	12 gr.	3 gr.	1 gr.	½ gr.	—
	Founders' Company -	—	No return made.						
	Metropolitan Board of Works.	—	No balances used.						
	Paddington, Parish of -	4	Every 3 mths.	Jan. 1868	Not stated.				
	St. Marylebone, Parish -	6	4 times a year	Dec. 30, 1867	½ dr.	½ dr.	½ dr.	½ dr.	—
	St. Pancras, Parish - -	7	Once a quarter	June 24, 1867	Not stated.				
	Tower of London, Liberty	3	When required	Aug. 1863	1 dr.	½ dr.	—	—	—
	Westminster, City and Liberty.	5	"	Aug. 1867	2 dr.	"	½ dr.	1 gr.	—
	St. John of Jerusalem, Manor.	—	Inspection transferred to County.						
	Savoy, Manor - - -	—							
	The Rolls, Liberty of -	—							
	Heston, Parish (Manor of Isleworth).	—							
	Isleworth, Parish (Manor of Isleworth).	—							
	Twickenham, Parish (Manor of Isleworth).	—							
	Total for County of Middlesex -	68							
Monmouthshire.	The County - - -	5	Every 7 yrs.	1862	The smallest amount appreciable.				
	Monmouth, Borough -	—	No return made.						
	Newport, Borough - -	5	When required	Feb. 1867	Correct, from having been recently adjusted.				
	Total for County of Monmouth -	10							
Norfolk -	15 Subdivisions of the County.	45	Every 5 yrs.	1861 and 1867	Not stated.				
	Buckenham, New, Borough	2	Not stated	1854	Not stated.				
	King's Lynn, Borough -	—	No return made.						
	Norwich, City and County of City.	6	Uncertain	1866	2 dr.	½ dr.	2 gr.	1 gr.	—
	Thetford, Borough - -	2	Not stated.						
	Walsham, North, Parish -	—	Inspection transferred to County many years since.						
	Yarmouth, Borough -	4	Not since 1861	Dec. 1861	6 gr.	2 gr.	1 gr.	¼ dr.	—
	Total for County of Norfolk -	59							
Northampton	The County - -	21	Every 5 years	May 1864	½ dr.	Smallest possible error.			
	Daventry, Borough - -	—	No return made.						
	Higham Ferrers, Borough	—	No return made.						
	Northampton, Borough -	3	Every 5 years	April 1865	½ dr.	The slightest error.			
	Peterboro', Liberty of -	4	"	March 1866	2 dr.	1 dr.	½ dr.	¼ dr.	—
	Total for County of Northampton	28							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Northumberland.	6 Subdivisions of the County, viz.:—								
	Castle Ward, East	3	Every 6 yrs.	Jan. 1867	½ dr.	6 gr.	3 gr.	½ gr.	$\frac{1}{16}$ gr.
	Castle Ward, West	3	Every 2 yrs.	Sept. 1865	1 dr.	3 gr.	1 gr.	—	—
	Coquetdale Ward, &c.	4	4 times a year	1867	,,	6 gr.	2 gr.	1 gr.	$\frac{1}{16}$ gr.
	Morpeth Ward, &c.	4	When required	Feb. 2, 1866	½ dr.	½ dr.	1 gr.	,,	—
	Norham, Ward, &c.	3	Every 5 yrs.	Dec. 24, 1866	,,	,,	½ dr.	½ dr.	—
	Tindale Ward, &c.	5	3 times in 10 years.	,,	2 dr.	1 dr.	10 barley-corns.	2 barley-corns.	—
	Berwick-upon-Tweed, County of the Borough and Town.	2	Able to detect the smallest error.						
	Newcastle-upon-Tyne, Town and County.	2	Once a year	May 24, 1867	½ dr.	—	—	—	—
	Tynemouth, Borough	3	Once a month	Aug. 6, 1867	—	—	—	—	—
	Alnwick, Manor and Boro'	—	Not stated.						
	Corbridge, Prudhoe, and Newburn, Manor and Barony.	—	,,						
	Hexham, Manor	—	,,						
	Rothbury, Manor	—	,,						
	Warkworth, &c., Manor and Borough.	—	,,						
	Total for County of Northumberland	29							
Nottingham	6 Subdivisions of the County.	18	Every 5 yrs.	July 11, 1865	Not stated.				
	Newark, Borough	2	- - -	Mar. 12, 1860	Nil.				
	Nottingham, Town and County of Town.	7	Monthly	July 30, 1867	6 gr.	4 gr.	1 gr.	½ gr.	
	Retford, East Borough	—	Transferred to County.						
	Total for County of Nottingham	27							
Oxfordshire	The County	30	When required	1865	Half a dram or less.				
	Banbury, Borough	4	Not stated	1868	¼ oz.	—	—	—	—
	Chipping Norton, Borough	—	No return made.						
	Oxford, University	3	When required	Not stated	½ dr.	½ dr.	½ dr.	½ dr.	—
	Total for County of Oxford	37							
Rutland	The County	6	,,	June 26, 1863	,,	,,	⅛ dr.	⅕ dr.	—
	Total for County of Rutland	6							
Salop	2 Subdivisions of the County, viz.:—								
	1. North	3	Every 5 yrs.	April 1867	1 dr.	½ dr.	1 gr.	Not stated.	
	2. South	3	,,	March 1867	,,	,,	—	—	
	Bridgnorth, Borough	4	,,	1866	⅛ dr.	,,	½ dr.	Not stated.	
	Ludlow, Town	3	,,	1867	1 gr.	—	—	—	—
	Oswestry, Borough	3	Once a week	- - -	1 dr.	1 dr.	½ dr.	½ dr.	—
	Shrewsbury, Borough	3	Every 5 yrs.	1865	½ dr.	½ dr.	,,	,,	—
	Wenlock, Borough	3	,,	Aug. 30, 1865	1 dr.	,,	Trifling.		
	Total for County of Salop	22							
Somerset	15 Subdivisions of the County.	43	Every 5 yrs.	1858, 1859, 1864, 1867.	½ dr. to 4 drs.	3 gr. to ½ dr.	1 gr. to ½ dr.	½ gr. to ⅛ dr.	—
	Axbridge, Borough	—	Transferred to County.						
	Bath, City and Borough	10	Half-yearly	June 1867	½ dr.	4 gr.	2 gr.	½ gr.	—
	Bridgewater, Borough	3	Every 18 mths.	Jan. 1868	—	—	—	—	—
	Bristol, City and County of City.	9	Every week	Dec. 31, 1866	1 dr.	5 gr.	1 gr.	2 grs.	0·01 gr.
	Glastonbury, Borough	—	Transferred to County.						
	Wells, Borough	—	,,						
	Yeovil, Borough	3	Every 3 yrs.	March 1864	—	—	—	—	—
	Watchett, Manor and Borough, and adjacent Manors.	4	Once a year	- - -	½ dr.	⅛ dr.	⅛ dr.	$\frac{1}{32}$ dr.	—
	Wiveliscombe, Borough, and adjacent Manors.	2	Not stated	Nov. 2, 1861	,,	½ dr.	½ dr.	½ dr.	—
	Total for County of Somerset	74							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Staffordshire	The County	9							
	Bilston Market	—			No return made.				
	Burslem, Town	—			"				
	Hanley Market	3	Quarterly.	—	—	—	—	—	—
	Lichfield, City	—			No return made.				
	Newcastle-under-Lyne, Borough.	3	Every 5 yrs.	—	None.				
	Stafford, Borough	3	"	Jan. 18, 1865	½ oz.	¼ oz.	2 dr.	½ dr.	—
	Tamworth, Borough	2	Yearly	Jan. 10, 1866	¼ oz.	1 dr.	1 scr.	1 gr.	—
	Walsall, Borough	3	Jan. 1860	Jan. 1860	½ dr.	½ dr.	½ dr.	—	—
	Wolverhampton, Borough	3	Every 5 yrs.	Sept. 1863	Not stated.				
	Total for County of Stafford	26							
Suffolk	2 Divisions of the County, viz.:—								
	East Suffolk.								
	5 Districts	34	Every 5 yrs.	1858–1866.	2 dr. to ½ dr.	1 dr. to ½ dr.	1 dr. to ½ scr.	1 dr. to ½ scr.	—
	West Suffolk.								
	Head Quarters, Bury St. Edmund's.	3	Whenrequired	Jan. 10, 1865	Too small an amount to denominate.				
	4 Districts	12	Not stated	1860–1865	"		"		
	Aldeburgh, Borough	3	—	Feb. 1862	½ dr.	½ dr.	1 gr.	½ gr.	—
	Bury St. Edmund's, Borough.	3	Whenrequired	Feb. 1861	The balances being correct, requires too small an amount to denominate.				
	Eye, Borough	3	Not known	Not known.					
	Halesworth, Town	—			Transferred to County.				
	Ipswich, Borough	3	Whenrequired	—	½ dr.	4 gr.	1 gr.	⅛ gr.	1/14 gr.
	Orford, Borough	—			No return made.				
	Southwold, Borough and Manor.	4	Seldom	March 5, 1853	1 dr.	½ dr.	2 gr.	1 gr.	—
	Stowmarket, Town	—			Inspection transferred to County.				
	Sudbury, Borough	3	Not stated	July 19, 1860	None.				
	Total for County of Suffolk	68							
Surrey	11 Subdivisions of the County.	28	Whenrequired	1867	15 gr. to 2 dr.	2 gr. to 1 dr.	1 gr. to ½ dr.	1 gr. to ½ dr.	—
	Battersea, Parish of	—			Inspection transferred to County.				
	Camberwell, Parish of St. Giles.	—			"	"			
	Clapham, Parish	—			Transferred to County.				
	Godalming, Borough	—			"				
	Guildford, Borough	2	Not stated	June 23, 1856	The least possible deficiency can be detected.				
	Kingston, Borough	—			No return made.				
	Mitcham, Parish	—			Inspection transferred to County.				
	Southwark, Town and Borough.	—			"	"			
	Streatham, Parish	—			"	"			
	Croydon, Manor	—			"	"			
	Southwark, Manor	—			"	"			
	Total for County of Surrey	30							
Sussex	11 Subdivisions of the County.	35	Every 5 yrs.	1867	½, ¾, and 1 dr.	3 gr. to ⅜ dr.	1 gr. to 1/16 dr.	½ gr. to 1 dwt.	⅛ gr.
	Arundel, Borough	3			Not stated.				
	Battle, Town	—			Inspection transferred to County.				
	Brighton, Borough	4	Twice a year.	March 1868	½ dr.	3 gr.	1 gr.	1 gr.	⅛ gr.
	Chichester, City	3	Every 5 yrs.	March 1866	None.				
	East Grinsted, Town	3	Not stated	May 1867	1 dr.	¼ dr.	1 gr.	¼ gr.	—
	Hastings, Borough	3	"	April 5, 1862	"	6 gr.	2 gr.	2 gr.	—
	Pevensey, Liberty of	3	Whenrequired	Dec. 14, 1867	"	½ dr.	½ dr.	1 gr.	—
	Rye, Borough	—			No record kept.				
	Winchelsea, Borough	—			No return made.				
	Worthing, Town	—			Inspection transferred to the County.				
	Total for County of Sussex	54							
Warwickshire	5 Hundreds of the County	15	Not stated	1859, 1862, 1863.	½ dr.	4 gr. to 1 dr.	2 gr. to ½ dr.	1 gr.	—
	Birmingham, Borough	10	Whenrequired	1867	½ dr.	4 gr.	2 gr.	½ gr.	1/16 gr.
	Coventry, City	3	Once in 3 yrs.	April 9, 1864	Not stated.				
	Leamington, Parish	3	Not stated	Sept. 19, 1864	½ dr.	—	—	—	—
	Stratford-on-Avon, Borough.	3	"	July 1867	"	½ dr.	½ dr.	1 gr.	—

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Warwickshire —*cont.*	Sutton Coldfield, Royal Town, Manor of.	3	Not stated	- - -	Not stated.				
	Warwick, Borough -	3	Not since 1861	Aug. 1861	Very small amount; cannot tell exactly.				
	Total for County of Warwick -	40							
Westmoreland	The County - - -	6	Every 5 yrs.	1863	½ dr.	½ dr.	½ dr.	½ dr.	—
	Kirby in Kendal, Borough	—			Transferred to County.				
	Total for County of Westmoreland	6							
Wiltshire -	9 Subdivisions of the County.	24 in 8 districts.	Every 3 and 5 years.	1864, 1865.	6 gr. to 1 dr.	2 gr. to ½ dr.	1 gr. to ½ dr.	1 gr. to ½ dr.	—
	Devizes, Borough - -	—			No return made.				
	Marlborough, Borough -	3	Not stated	1862	4 gr.	3 gr.	1 gr.	1 gr.	—
	Sarum, New, City and Borough.	3	Every 5 yrs.	Jan. 9, 1866	½ dr.	½ dr.	½ dr.	½ dr.	—
	Swindon, Market - -	—			No return made.				
	Aldborne, Manor - -	—			"				
	Trowbridge, Manor - -	—			Transferred to the County.				
	Total for County of Wilts - -	30							
Worcestershire.	9 Subdivisions in the County.	27	Every 5 yrs.	1865	½ dr. to 2 dr.	2 gr. to 1 dr.	1 gr.	1 gr.	—
	Dudley, Borough - -	4	Every 5 yrs.	"	"	"	"	"	—
	Bewdley, Borough - -	3	Cannot say	Cannot say	Less than ½ dr.				
	Droitwich, Borough -	3	Not since purchased.	1862	The veriest trifle can be detected.				
	Dudley, Parish and Borough.	—			Transferred to County.				
	Evesham, Borough - -	—			Transferred to County.				
	Kidderminster, Borough -	2	Every 5 yrs.	June 17, 1864	2 dr.	½ dr.	¼ dr.	¼ dr.	—
	Stourbridge, Town - -	—			Transferred to County.				
	Worcester, City - -	4	Every 6 mths.	Jan. 1867	—	—	—	—	—
	Cutsdam, Manor - -	—			No return made.				
	Evesham, Manor - -	—			"				
	Total for County of Worcester -	43							
York - - -	East Riding - - -	4	When required	Not stated	Not able to show.				
	North Riding—								
	17 Subdivisions - -	51	When used	1858, 1859.	½ dr. to 6 dr.	¼ dr. to 2 dr.	—	—	—
	West Riding - - -	—			No return made.				
	Bradford, Borough - -	13	—	Mar. 4, 1867	None.				
	Beverley, Borough - -	3	Frequently	July 5, 1867	½ dr.	—	—	—	—
	Doncaster, Borough -	4	Once in 5 yrs.	June 30, 1866	The smallest error can be detected.				
	Halifax. *See* Wakefield, Manor.								
	Hedon, Borough - -	—			Transferred to County.				
	Hull. *See* Kingston-on-Hull.								
	Kingston-on-Hull, Borough.	4	Every 2 yrs.	1866	¼ oz.	2 dr.	2 dr.	2 dr.	—
	Leeds, Borough - -	6	"	"	Not stated.				
	Middlesboro', Borough -	2	Every week	Not stated	½ dr.	A feather	—	—	—
	Pontefract, Borough -	4	When required	July 24, 1867	Not stated.				
	Richmond, Borough -	3	Frequently	Not stated	Nil.				
	Ripon, City, or Borough and Liberty.	5	Not stated	1860	Any amount of error can be detected.				
	Scarboro', Borough -	6	When required	Dec. 31, 1863	Smallest perceptible.				
	Sheffield, Town - -	—			No return made.				
	" Borough - -	21	When required	1864	0·05 oz. troy.	0·02 oz. troy.	0·005 oz. troy.	0·0005 oz. troy.	—
	York, City - - -	3	When used	Not stated	1 dr.	½ dr.	$\frac{1}{12}$ dr.	1 gr.	—
	Burlington, Manor - -	—			Transferred to County.				
	Eccleshall Bierlow, Manor	—			Transferred to Borough of Sheffield.				
	Honley, &c., Manor -	—			No standards kept.				
	Leeds, Kirkgate, &c., Manor.	2	Not stated	Aug. 28, 1858	2 dr.	1 dr.	6 gr.	6 gr.	—
	Wakefield, Manor, and Town of Halifax.	—			No return made.				
	Total for County of York - -	131							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
				WALES.					
Anglesea -	County - - - -	6	Not since 1859	May 1859	Not stated.				
	Total for County of Anglesea -	6							
Brecon - -	County - - - -	3	Every 5 yrs.	Nov. 13, 1862	1 dr.	½ dr.	—	—	—
	Brecon, Borough - -	3	Whenrequired	Not stated	The smallest error can be detected.				
	Total for County of Brecon -	6							
Carmarthen -	County - - - -	—			No return made.				
	Carmarthen, County of Borough.	—			No return made.				
	Kidwelly, Borough -	3	4 times a yr.	1857	—	—	—	—	—
	Llanelly - - - -	—			Not stated.				
	Total for County of Carmarthen -	3							
Cardigan -	County - - - -	2	Every 10 yrs.	Sept. 13, 1860	½ gr.	—	—	—	—
	Total for County of Cardigan -	2							
Carnarvon -	County - - - -	15	Whenrequired	1864	2 dr.	½ dr.	½ dr.	½ dr.	—
	Pwllheli, Borough - -	—			No return made.				
	Total for County of Carnarvon -	15							
Denbigh -	County - - - -	6	Monthly	April 1868	1 dr.	3 gr.	2 gr.	½ gr.	—
	Denbigh, Borough - -	—			Transferred to County.				
	Total for County of Denbigh -	6							
Flint - -	3 Subdivisions of the County.	9	Whenrequired	1865	Inspector has no weights by which he can ascertain the errors.				
	Flint, Borough - -	—			No return made.				
	Total for County of Flint - -	9							
Glamorgan -	4 Subdivisions of the County.	12	Not stated	1859	1 dr.	1 dr.		Correct.	
	Cardiff, Borough - -	—			Inspection transferred to County.				
	Swansea, Borough - -	4	Quarterly	Mar. 20, 1868	Not stated.				
	Total for County of Glamorgan -	16							
Merioneth -	County - - - -	3	Every 5 yrs.	Mar. 6, 1865	½ dr.	10 gr.	—	½ gr.	—
	Total for County of Merioneth -	3							
Montgomery -	County - - - -	3	„	July 9, 1863	1 dr.	½ dr.	1 gr.	¼ gr.	—
	Total for County of Montgomery -	3							
Pembroke -	County - - - -	13	„	Mar. 4, 1868	½ dr.			The smallest amount.	
	Haverfordwest, Town and County of.	3	Cannot say	Dec. 1860	Not stated.				
	Tenby, Borough - -	3	Not stated	1868	Not stated.				
	Total for County of Pembroke -	19							
Radnor - -	County - - - -	3	Not since 1859	Not known	1 dr.	1 dr.	2 gr.	2 gr.	—
	Rhayader, Borough -	—			No return made.				
	Total for County of Radnor -	3							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
SCOTLAND.									
Aberdeen -	3 Districts of the County -	9	Not stated	1860	1 dr. to ½ dr.	6 dr. to 5 gr.	2 gr. to 1 gr.	½ gr.	—
	Aberdeen, Royal Burgh -	8	Once a year	March 29, 1867	30 gr.	4 gr.	1 gr.	,,	—
	Total for County of Aberdeen -	17							
Argyll -	County - - - -	5	Since 1860	1860	Not known exactly.				
	Campbelltown, Royal Burgh	1	Not known	Not known	Not known.				
	Oban, Burgh - - -	—	No return.						
	Total for County of Argyll -	6							
Ayr - -	County - - - -	6	Once since 1859.	Feb. 1865	Less than half a dram.				
	Ayr, Royal Burgh - -	—	No return made.						
	Irvine, Royal Burgh -	3	Quarterly	Aug. 1867	Less than 1 grain.				
	Kilmarnock, Burgh -	3	Every 5 yrs.	June 1862	15⅓ gr.	4 gr.	—	1 gr.	—
	Total for County of Ayr - -	12							
Banff - -	County - - - -	3	Not since 1859	Dec. 22, 1859	1 dr.	½ dr.	None distinguishable.		
	Banff, Royal Burgh -	None	None.						
	Total for County of Banff - -	3							
Berwick -	County - - - -	4	Not stated	Dec. 1866	½ dr.	1 gr.	1 gr.	½ gr.	—
	Lauder, Royal Burgh -	2	,,	Not stated.	Not stated.				
	Total for County of Berwick -	6							
Bute - -	County - - - -	2	- - -	1863	2 dr.	¼ dr.	—	—	—
	Rothsay, Royal Burgh -	2	Once in 3 yrs.	1863	1 dr.	,,	—	—	—
	Total for County of Bute - -	4							
Caithness -	County - - - -	3	Whenrequired	No record kept	Any error.				
	Wick, Royal Burgh -	—	No Standards in use.						
	Total for County of Caithness -	3							
Clackmannan	County - - - -	—	No return made.						
	Total for County of Clackmannan	—							
Cromarty -	County - - - -	2	Not yet required.		—	—	—	—	—
	Total for County of Cromarty -	2							
Dumbarton -	County - - - -	6	Not stated	May 15, 1866	½ dr.	—	—	—	—
	Dumbarton, Royal Burgh	4	Once a year	Not stated	Very trifling and cannot be computed.				
	Total for County of Dumbarton -	10							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
DUMFRIES	County	7	Once a year	April 1867	1 dr.	½ dr.	½ dr.	—	—
	Annan, Royal Burgh	—	No return made.						
	Dumfries, Royal Burgh	7	Once a year	April 1867	1 dr.	½ dr.	½ dr.	—	—
	Sanquhar, Royal Burgh	—	No return made.						
	Total for County of Dumfries	14							
EDINBURGH	County	6	When required	June 1, 1867	½ dr.	½ dr.	1 dr.	½ dr.	—
	Edinburgh, City	7	3 times a year	March 1867	„	1 gr.	⅛ gr.	⅛ gr.	—
	Leith, Burgh	2	Not stated	—	No error allowed to exist.				
	Total for County of Edinburgh	15							
ELGIN	County	2	Once in 7 yrs.	Cannot say	Not stated.				
	Elgin, Royal Burgh	4	Yearly	March 1867	Not stated.				
	Total for County of Elgin	6							
FIFE	County	9	Every time before used.						
	Anstruther, East, Royal Burgh.	—	No return made.						
	Burntisland, Royal Burgh	—	Not stated.						
	Crail, Royal Burgh	—	Transferred to County.						
	Cupar, Royal Burgh	—	Transferred to County.						
	Dunfermline, Royal Burgh	2	When required	1867	1½ dr.	½ dr.	—	—	—
	Inverkeithing, Royal Burgh	4	Yearly	April 16, 1867	Not stated.				
	Kinghorn, Royal Burgh	—	Transferred to County.						
	Kirkcaldy, Royal Burgh	3	When required	Jan. 1, 1868	Less than 1 dram.				
	Pittenweem, Royal Burgh	3	„	April 25, 1865	Cannot say.				
	St. Andrews, City and Royal Burgh.	3	„	Not stated	15 gr.	10 gr.	—	—	—
	Total for County of Fife	24							
FORFAR	County	3	When required	June 1864	Not ascertained.				
	Arbroath, Royal Burgh	3	Annually	Oct. 1866	½ gr.	⅛ gr.	—	—	—
	Brechin, Royal Burgh	2		1853					
	Dundee, Royal Burgh	5	Once a year	March 1867	1 dr.	½ dr.	1 gr.	—	—
	Forfar, Royal Burgh	3	Not stated.						
	Montrose, Royal Burgh	1	Not known	Not known	A pin would turn the scales.				
	Total for County of Forfar	17							
HADDINGTON	County	8	Every 3 mths.	Dec. 1866	1 dr.	¼ dr.	¼ dr.	1 gr.	—
	Berwick, North, Royal Burgh.	—	Not stated	Not stated.	—	—	—	—	—
	Dunbar, Royal Burgh	3	Not for years	Not known.	—	—	—	—	—
	Total for County of Haddington	11							
INVERNESS	County	6	3 times a yr.	No record kept	½ dr.	½ dr.	—	—	—
	Inverness, Royal Burgh	3	Twice a year	1866	2 dr.	„	An infinitesimal amount.		
	Total for County of Inverness	9							
KINCARDINE	County	3	When required	July 16, 1867	Practically accurate.				
	Total for County of Kincardine	3							
KINROSS	County	3	Not for the last 7 years.		Not stated.				
	Total for County of Kinross	3							
KIRCUDBRIGHT	County	3	When required	May 23, 1865	½ dr.	½ dr.	½ dr.	½ dr.	—
	Kircudbright, Burgh	—	Transferred to County.						
	Total for County of Kircudbright	3							

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Lanark	Divided into 3 Wards :—								
	Upper Ward	3	No fixed time	Dec. 1866	—	—	—	—	—
	Middle Ward, divided into 4 Districts.	12	Annually	1866 and 1867	Not stated.				
	Lower Ward	5	No fixed time	Jan. 1866	½ dr.	½ dr.	½ dr.	⅛ dr.	—
	Airdrie, Burgh	3	Whenrequired	Jan. 1867	„	3 gr.	2 gr.	⅛ gr.	—
	Calton, Burgh	—	Transferred to City and Burgh of Glasgow.						
	Glasgow, City, in 3 Districts and 2 Burghs.	13	Daily.	—	Not stated.				
	Lanark, Royal Burgh	3	—	Cannot say.	Not stated.				
	Partick, Burgh	—	Transferred to County.						
	Total for County of Lanark	39							
Linlithgow	County	—	No return made.						
	Total for County of Linlithgow	—							
Nairn	Burgh	—							
	Total for County of Nairn	—							
Orkney	County	3	Once in 3 yrs.	April 1867	No error found.				
	Total for County of Orkney	3							
Peebles	County	3	Whenrequired	July 22, 1867	The smallest amount of error.				
	Peebles, Royal Burgh	2	Not known	1866	54 gr.	54 gr.	54 gr.	Correct.	
	Total for County of Peebles	5							
Perth	County	2	Whenrequired	Feb. 14, 1867	½ dr.	1/12 dr.	1/24 dr.	1/48 dr.	1/80 dr.
	Culross	—	Not stated.	—	—	—	—	—	—
	Perth, City or Burgh	3	Occasionally	July 1867	½ dr.	1/12 dr.	1/24 dr.	—	—
	Total for County of Perth	5							
Renfrew	County	6	Yearly	March 30, 1866	½ dr.	1 gr.	1 gr.	1 gr.	—
	Greenock, Burgh	—	No inspection until 1867.						
	Paisley, Burgh	5	4 times a yr.	June 1867	½ dr.	2 grs.	1 gr.	1/20 gr.	1/40 gr.
	Pollockshaws, Burgh	—	No inspection here.						
	Renfrew, Royal Burgh	3	12 times a yr.	June 1867	¼ dr.	⅛ dr.	—	—	—
	Total for County of Renfrew	14							
Ross	County	7	Not stated	—	Not stated.				
	Tain, Royal Burgh	2	Not since 1860	Aug. 1860	Not stated.				
	Total for County of Ross	9							
Roxburgh	County	6	Whenrequired	Aug. 1864	¼ dr.	⅛ dr.	1 gr.	¼ gr.	—
	Total for County of Roxburgh	6							
Selkirk	County and Royal Burgh	2	Have not required adjustment.		None.				
	Total for County of Selkirk	2							
Stirling	County	2	Once a month	July 14, 1867	2 dr.	1 dr.	½ dr.	1/16 dr.	1/32 dr.
	Falkirk, Parliamentary Burgh.	3	Whenrequired	Not stated	Not stated.				
	Stirling, Royal Burgh*	—	—	—	—	—	—	—	—
		5							

* The Inspector for the Royal Burgh of Stirling is also Inspector for the county, and uses the county standards and balances, to save expense.

App. III.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Sutherland -	County - - - -	3	Not stated	June 8, 1863	10 gr.	4 gr.	1 gr.	¼ gr.	—
	Total for County of Sutherland -	3							
Wigtown -	County and Royal Burgh	3	„	1861			None.		
	Stranraer, Royal Burgh -	3	2 years	July 1867	1½ dr.	½ dr.	1 gr.	½ gr.	—
	Total for County of Wigtown -	6							
Zetland -	Lordship - - -	—			No return made.				
	Total for County of Zetland - -	—							

					With 52 Jersey lbs. in the scales.	With 13 lbs. in the scale.			
Jersey -	Island of - - -	3 sets	Twice a year	June 1868	1 gr.	1 gr.	½ gr.	$\frac{2}{10}$ gr.	$\frac{1}{10}$ gr.
Man - -	Isle of - - - -	—	Not stated.	—	—	—	—	—	—

SUMMARY OF ABSTRACT B.

ENGLAND.

County.	Number of Balances used.	County.	Number of Balances used.
Bedford - - - -	15	Middlesex - - - -	68
Berks - - - - -	5	Monmouth - - - -	10
Bucks - - - - -	25	Norfolk - - - -	59
Cambridge - - - -	16	Northampton - - - -	28
Chester - - - - -	40	Northumberland - - -	29
Cornwall - - - -	31	Nottingham - - - -	27
Cumberland - - - -	25	Oxford - - - - -	37
Derby - - - - -	30	Rutland - - - - -	6
Devon - - - - -	46	Salop - - - - -	22
Dorset - - - - -	34	Somerset - - - -	74
Durham - - - - -	48	Stafford - - - -	26
Essex - - - - -	57	Suffolk - - - - -	68
Gloucester - - - -	26	Surrey - - - - -	30
Hants - - - - -	37	Sussex - - - - -	54
Hereford - - - -	9	Warwick - - - -	40
Herts - - - - -	16	Westmoreland - - -	6
Huntingdon - - - -	10	Wilts - - - - -	30
Kent - - - - -	93	Worcester - - - -	43
Lancaster - - - -	173	York - - - - -	131
Leicester - - - -	28		
Lincoln - - - - -	62	Total for England -	1,614

Appendix III.—*continued.*—Summary of Abstract B.—*continued.*

WALES.

County.	Number of Balances used.	County.	Number of Balances used.
Anglesea	6	Glamorgan	16
Brecon	6	Merioneth	3
Carmarthen	3	Montgomery	3
Cardigan	2	Pembroke	19
Carnarvon	15	Radnor	3
Denbigh	6		
Flint	9	Total for Wales	91

SCOTLAND.

Aberdeen	17	Kincardine	3
Argyll	6	Kinross	3
Ayr	12	Lanark	39
Banff	3	Linlithgow	—
Berwick	6	Nairn	—
Bute	4	Orkney	3
Caithness	3	Peebles	5
Clackmannan	—	Perth	5
Cromarty	2	Renfrew	14
Dumbarton	10	Ross	9
Dumfries	14	Roxburgh	6
Edinburgh	15	Selkirk	2
Elgin	6	Stirling	5
Fife	24	Sutherland	3
Forfar	17	Wigtown	6
Haddington	11	Zetland	—
Inverness	9		
Kircudbright	3	Total for Scotland	265

County.	Number of Balances used.
England	1,614
Wales	91
Scotland	265
TOTAL FOR GREAT BRITAIN	1,970

Isle of Jersey - - - 3
Isle of Man - - - Not stated.

Standards Department, Board of Trade,
18th November 1868.

H. W. Chisholm,
Warden of the Standards.

Appendix III.—*continued.*

ABSTRACTS of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in GREAT BRITAIN, for the Year ended December 31, 1866—*continued.*

ABSTRACT C.—NUMBER of FALSE and DEFECTIVE WEIGHTS, MEASURES, and BALANCES seized, &c. by Inspectors; AMOUNT of PENALTIES and COSTS; and to whom PAID.

Note.—In those cases where the number of weights, &c. stated as requiring adjustment is identical with the number stated to have been seized, the number requiring adjustment has been omitted, it being evident that in filling up the return these two columns have frequently been considered by the inspectors as having the same meaning.

The number of convictions is, in many cases, larger than the number of weights, measures, and balances seized, as the inspectors have no legal power to seize incorrect balances used in shops.

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
BEDFORDSHIRE.	4 Subdivisions of the County.	—	—	8	11	24	—	20	7 12 6	10 15 6	Co. Treasurer.	Justices' Clerk.
	Bedford, Borough	—	—	—	—	—	2	2	0 15 0	0 13 0	Boro' Treasurer	„
	Luton, Manor	No Standards in use.										
	Woburn, Manor	Transferred to the County.										
	Total for County of Bedford	—	—	8	11	24	2	22	8 7 6	11 8 6		
BERKSHIRE	7 Subdivisions of the County, viz.:—											
	Abingdon and Wallingford.	14	—	—	—	16	—	1	0 10 0	0 9 6	½ to Police Fund, ½ to Co. Rate.	Justices' Clerk.
	Farringdon	—	—	—	—	—	—	—	—	—	—	—
	Maidenhead and Windsor.	—	—	—	—	—	—	—	—	—	—	—
	Newbury	8	3	—	1	—	—	1	0 0 6	0 12 0	½ to Police Fund, ½ to Co. Rate.	Justices' Clerk.
	Reading	22	—	1	8	—	—	3	2 4 6	Not stated	„	
	Wantage	158	—	7	—	—	—	—	—	—	—	—
	Wokingham	61	—	2	37	—	—	6	4 19 0	3 9 6	½ to Police Fund, ½ to Co. Rate.	Justices' Clerk.
	Abingdon, Borough	—	—	—	—	—	—	—	—	—	—	—
	Maidenhead, Borough	—	—	—	—	—	—	—	—	—	—	—
	Newbury, Borough	No return made.										
	Reading, Borough	„										
	Wallingford, Borough	Inspection transferred to the County.										
	Windsor, Borough	Not stated.										
	Wokingham, Borough	Inspection transferred to the County.										
	Farringdon, Manor	No return made.										
	Total for County of Berks.	263	3	10	46	16	—	11	7 14 0	4 11 0		
BUCKS	6 Subdivisions of the County.	9,400	214	100	Not stated.			41	10 4 0	13 10 0	½ to the Co. Fund, ½ to Police Fund.	Justices' Clerk and Police Fund.
	Buckingham, Borough	—	—	—	—	—	—	—	—	—	—	—
	Wycombe, Borough	1,243	124	—	—	—	—	—	—	—	—	—
	Winslow, Manor	Transferred to the County.										
	Total for County of Bucks	10,643	338	100	Not stated.			41	10 4 0	13 10 0		
CAMBRIDGE	4 Subdivisions of the County.	—	—	2	10	22	—	7	4 3 0	4 18 6	Police Fund, Co. Rate.	½ Police Rate, ½ Magistrates' Fund.
	Cambridge, Borough	No return made.										
	Ely, Liberty of Island of	—	—	—	—	—	—	—	—	—	—	—
	Wisbech, Borough	—	—	—	3	—	—	—	—	0 8 0	- - -	Justices' Clerk.
	Total for County of Cambridge	—	—	2	13	22	—	7	4 3 0	5 6 6		

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.			Amount of Costs.			To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£	s.	d.	£	s.	d.		
CHESHIRE -	9 Subdivisions of the County, viz.:—															
	Bricklow - - -	—	—	—	—	—	10	5	1	10	0	2	13	6	Co. Treasurer.	Magistrates' Clerk.
	Broxton - - -	—	—	—	—	18	—	3	2	2	6	1	6	6	,,	,,
	Eddisburgh - -	—	—	6	—	—	—	6	4	10	0	2	10	0	,,	,,
	Hyde - - -	—	—	—	16	6	—	21	6	8	6	6	8	0	,,	,,
	Macclesfield - -	—	—	3	—	—	—	3	1	10	6	1	12	0	,,	,,
	Nantwich - - -	—	—	—	—	10	—	3	0	4	0	0	18	6	,,	,,
	Northwich - -	—	—	—	—	9	—	5	8	0	0	2	11	6	,,	,,
	Stockport - - -	—	—	6	Not stated			3	1	5	3	1	16	0	,,	,,
	Wirral - - -	—	—	—	18	12	+	15	10	15	0	5	11	6	,,	,,
	Birkenhead, Town - -	600	9	—	2	—	—	—	—			—			—	—
	Chester, City and Borough	—	—	6	117	—	—	22	9	5	0	7	14	0	½ to Inspector, ½ to Boro' Fund.	Magistrates' Clerk.
	Congleton, Borough -	—	—	—	—	—	—	—	—			—			—	—
	Macclesfield, Borough -	No return made.														
	Stockport, Borough -	—	—	—	Not stated			1	2	0	0	0	15	0	Boro' Treasurer	Justices' Clerk.
	Total for County of Chester -	600	9	21	153	55	10	87	47	10	9	33	16	6		
CORNWALL -	6 Subdivisions of the County.	—	—	—	72	13	2	46*	30	1	0	18	16	6	½ to Police Fund, ½ to Co. Treasurer.	Magistrates' Clerks.
	Bodmin, Borough - -	No account kept.			—	—	—	—	—			—			—	—
	Falmouth, Borough -	—	—	—	—	—	—	—	—			—			—	—
	Helstone, Borough - -	—	—	—	3	1	—	2	0	2	0	0	17	0	½ to Surveyor, ½ to Magistrates' Clerk.	Magistrates' Clerk.
	Launceston, Borough -	No return made.														
	Liskeard, Borough - -	—	—	—	9	—	—	3	1	10	0	0	19	6	Police Fund	Justices' Clerk.
	Penryn, Borough - -	—	—	—	—	—	—	—	—			—			—	—
	Penzance, Borough - -	—	—	—	Not stated			3	1	10	0	1	2	6	Boro' Fund	Justices' Clerk.
	St. Germans, Borough -	Transferred to the County.														
	St. Ives, Borough - -	—	—	—	Not stated			22	12	9	6	7	0	0	—	Justices' Clerk.
	Truro, Borough - -	—	—	—	—	—	—	—	—			—			—	—
	Total for County of Cornwall -	—	—	—	84	14	2	76	46	3	0	28	15	6		
CUMBERLAND	6 Subdivisions of the County.	10,322	819	—	160	61	13	95†	18	6	6	34	5	0	Magistrates' Clerks.	Magistrates' Clerks.
	Carlisle, City - - -	—	—	—	20	—	8	8	7	15	0	3	15	0	City Treasurer	Magistrates' Clerk.
	Workington, Town -	—	—	—	—	—	—	—	—			—			—	—
	Total for County of Cumberland -	10,322	819	—	180	61	21	103	26	1	6	38	0	0		
DERBY -	12 Subdivisions of the County, viz.:—															
	Alfreton - - -	—	—	—	Not stated			4	9	0	0	2	2	0	Co. Treasurer	Justices' Clerk.
	Ashbourn - - -	—	—	—	,,			3	1	2	6	1	18	0	,,	,,
	Bakewell - - -	—	—	—	14	—	—	13	6	17	0	6	12	0	,,	,,
	Belper - - -	—	—	—	—	—	—	—	—			—			—	—
	Chapel-en-le-Frith -	—	—	—	39	—	—	8	8	17	6	8	16	0	Justices' Clerk	Justices' Clerk.
	Chesterfield (including the Borough).	—	—	—	22	—	—	11	7	10	6	5	14	0	,,	,,
	Derby - - -	—	—	6	2	1	—	5	1	15	6	2	17	6	,,	,,
	Eckington - -	—	—	—	6	21	—	6	0	15	6	3	12	0	,,	,,
	Glossop (including the Borough).	—	—	—	Not stated			6	0	14	6	2	17	0	,,	,,
	Repton and Gresley -	—	—	—	13	—	4	19	2	6	6	5	19	0	,,	,,
	Smalley - - -	—	—	—	9	17	—	6	4	7	6	3	16	0	,,	,,
	Wirksworth - -	—	—	15	56	—	—	28	10	4	0	14	14	0	½ to Police Fund, ½ to Co. Rate.	,,
	Chesterfield, Borough -	Transferred to County.														
	Derby, Borough - -	No return made.														
	Glossop, Borough - -	Transferred to County.														
	Total for County of Derby - -	—	—	21	161	39	4	100	53	11	0	58	17	6		
DEVON -	12 Subdivisions of the County, viz.:—															
	Barnstaple - -	1,722	15	13	28	1	—	26	16	7	0	13	1	0	Co. Treasurer	Justices' Clerk.
	Bideford and Torrington.	1,096	16	—	23	—	—	3	0	10	0	1	12	0	,,	Magistrates' Clerk.
	Castle - - -	—	—	—	—	—	—	—	—			—			—	—
	Collumpton - -	5,026	110	661	12	—	4	11	1	17	0	4	14	3	Co. Treasurer	Justices' Clerk.
	Honiton - - -	Not known.			5	5	3	15	4	0	0	10	10	6	½ to Co. Rate, ½ to Police Fund.	Magistrates' Clerk.
	Okehampton - -	1,697	—	—	2	—	1	3	1	0	6	1	1	0	½ to informer, ½ to Co. Rate.	Justices' Clerk.

* There were 46 convictions, but in only 43 cases were penalties inflicted.
† In 33 cases the defendant had only to pay costs under 5*s.* each.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Devon—*cont.*	12 Subdivisions of the County—*cont.*											
	Paignton	—	—	—	60	—	—	26	7 8 3	11 8 0	Co. Treasurer	Magistrates' Clerk.
	Stanborough and Coleridge.	300	50	—	—	—	—	—	—	—	—	—
	East Stonehouse	—	—	—	9	—	—	4	0 12 6	1 2 0	Co. Treasurer	Justices' Clerk.
	Tavistock	465	—	—	5	4	—	7	2 18 6	2 16 0	Magistrates' Clerk.	Magistrates' Clerk.
	Teignbridge	Cannot say.										
	Tiverton	—	—	4	39	—	—	15	2 11 0	7 14 0	½ to informer, ½ to Co. Rate.	1*l.* 2*s.* 6*d.* to Co. Rate, 6*l.* 11*s.* 6*d.* to Justices' Clerk.
	Barnstaple, Borough	No return made.										
	Bideford, Town	"										
	Bradninch, Borough	648	63	29	—	—	—	—	—	—	—	—
	Dartmouth, Borough	No return made.										
	Devonport	—	—	—	7	—	—	1	0 2 6	0 7 6	½ Boro' Treasurer ½ to informer.	Magistrates' Clerk.
	Exeter, City and County	No return made.										
	Exmouth, Town	"										
	Great Torrington, Town	No Standards in use.										
	Holsworthy, Town and Manor of.	253	—	—	1	—	1	2	0 19 6	1 9 6	½ to Co. Treasurer, ½ to informer.	Informer.
	Ilfracombe, Borough	Transferred to County.										
	Molton, South, Borough	—	—	—	2	—	3	5	0 12 6	2 7 6	Boro' Treasurer	Magistrates' Clerk.
	Okehampton, Borough	Transferred to County.										
	Plymouth, Borough	—	—	1	26	—	—	5	2 0 0	1 10 0	½ to Inspector, ½ to Boro' Fund.	Justices' Clerk.
	Stoke Damerel, Parish	No return made. See Devonport Borough.										
	Stonehouse, East, Parish	No return made.										
	Tiverton, Borough	—	—	—	17	—	—	3	0 10 0	- - -	Magistrates' Clerk.	—
	Totnes, Borough	—	—	—	—	—	—	—	—	—	—	—
	St. Sidwell, Manor	Transferred to Ecclesiastical Commission in 1862, when the inspection under the Courts Leet was discontinued.										
	Tavistock, Borough	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Devon	11,207	254	708	236	10	12	126	41 9 3	59 13 3		
Dorset	9 Subdivisions of the County.	3	—	1	49	39	2	33	14 6 0	7 0 0	½ to Police Fund, ½ to Co. Rate.	Justices' Clerk.
	Bridport, Borough	Transferred to County.										
	Dorchester, Borough	—	—	—	—	—	—	—	—	—	—	—
	Lyme Regis, Borough	—	—	—	Not stated			1	2 0 0	0 19 0	½ to Police Fund, ½ to Boro' Fund.	Justices' Clerk.
	Poole, Town and County	—	—	—	—	—	—	—	—	—	—	—
	Weymouth, Borough	No return made.										
	Gillingham, Liberty and Manor.	"										
	Total for County of Dorset	3	—	1	49	39	2	34	16 6 0	7 19 0		
Durham	11 Subdivisions of the County, viz.:—											
	Barnard Castle	—	—	—	—	—	2	2	0 1 0	1 0 6	½ to Police Fund, ½ to Co. Rate.	Magistrates' Clerk.
	Bishop Auckland	—	—	—	—	—	1	1	3 0 0	0 9 0	"	"
	Castle Eden	—	—	3	13	—	—	5	0 14 0	1 15 6	"	"
	Chester	—	—	—	6	1	7	9	6 15 0	4 3 0	"	"
	Darlington	—	—	4	18	—	—	10	1 15 0	3 5 0	"	"
	Durham	—	—	—	—	—	—	—	—	—	—	—
	Houghton-le-Spring	—	—	—	—	—	—	—	—	—	—	—
	Jarrow	—	—	2	3	—	—	3	3 13 0	1 7 0	½ to Police Fund, ½ to Co. Rate.	Magistrates' Clerk.
	Lanchester	—	—	3	10	12	—	4	0 17 6	4 13 6	"	"
	Stanhope	—	—	—	—	—	8	8	5 0 0	3 13 6	"	"
	West Hartlepool	—	—	4	46	9	—	21	5 6 0	7 16 0	"	"
	Gateshead, Borough	—	—	—	—	—	—	—	—	—	—	—
	Stockton-on-Tees, Boro'.	No record kept.										
	South Shields, Borough	—	—	—	50	—	3	10	3 0 0	3 8 6	Boro' Fund	Magistrates' Clerk.
	Sunderland, Borough	No inspection during 1866,* Standards originally verified in 1866.										
	Total for County of Durham	—	—	16	146	22	21	73	29 1 6	31 11 6		

* The Inspector for Sunderland has furnished the Commission with a supplementary return for the year 1867, as follows:
Number of weights, &c. seized during 1867 = 413 weights, and 74 measures, including 26 half-pint glasses and 8 quart jugs.
Number of convictions " " = 127.
Amount of penalties " " = 58*l.* 16*s.* } Paid to Borough Treasurer.
Amount of costs " " = 36*l.* 16*s.* }

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
ESSEX -	15 Subdivisions of the County, viz.:—								£ s. d.	£ s. d.		
	1. Brentwood - -	—	—	—	—	—	—	—	—	—	—	—
	2. (District No. 2) -	—	—	—	—	—	—	—	—	—	—	—
	3. Colchester - -	—	—	—	—	—	—	—	—	—	—	—
	4. Dengie - - -	—	—	—	—	—	—	—	—	—	—	—
	5. Great Dunmow -	—	—	—	6	—	2	4	4 0 0	1 18 0	½ to Police Fund, ½ Co. Treasurer.	Magistrates' Clerk.
	6. (District No. 6) -	—	—	2	3	4	—	5	0 12 6	3 3 0	Magistrates' Clerk.	,,
	7. Freshwell - -	—	—	—	—	—	—	—	—	—	—	—
	8. (District No. 8) -	—	—	—	—	16	—	4	0 17 0	2 1 0	½ to Police Fund, ½ Co. Treasurer.	Magistrates' Clerk.
	9. Hinckford - -	—	—	—	—	—	—	—	—	—	—	—
	10. (District No. 10) -	—	—	—	—	—	—	—	—	—	—	—
	11. Rochford - -	—	—	2	7	—	—	5	1 1 0	2 0 6	Magistrates' Clerk.	Magistrates' Clerk.
	12. Tendring - -	—	—	5	8	8	—	9	1 12 0	3 12 6	½ to Police Fund, ½ Co. Treasurer.	,,
	13. Walden -	—	—	—	—	—	—	—	—	—	—	—
	14. Witham - -	—	—	—	—	—	1	1	0 12 0	0 9 6	½ to Police Fund, ½ Co. Treasurer.	Magistrates' Clerk.
	15. Orsett - - -	—	—	—	—	—	—	—	—	—	—	—
	Colchester, Borough -	Not known			—	4	—	5	0 9 0	0 14 6	½ to informer, ½ Boro' Treasurer	Justices' Clerk.
	Maldon, Borough - -	No return made.										
	Harwich, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Havering-atte-Bower, Liberty of.	—	—	—	—	—	—	—	—	—	—	—
	Saffron Walden, Borough	—	—	—	—	—	—	—	—	—	—	—
	Wetherfield, Manor -	No Standards in use.										
	Total for County of Essex - -	—	—	9	24	32	3	33	9 3 6	13 19 0		
GLOUCESTERSHIRE.	8 Subdivisions of the County, viz.:—											
	Bristol - - -	—	—	—	—	—	—	—	—	—	—	—
	Cheltenham - -	—	—	—	84	—	6	17	6 1 6	7 2 0	Co. Treasurer	Magistrates' Clerk.
	Cirencester - -	—	—	—	—	—	—	—	—	—	—	—
	Dursley - - -	—	—	—	—	—	—	—	—	—	—	—
	Forest - - -	—	—	—	—	—	—	—	—	—	—	—
	Gloucester - -	—	—	—	—	—	—	—	—	—	—	—
	Stroud - - -	—	—	—	—	—	—	—	—	—	—	—
	Stow-in-the-Wold - -	—	—	—	—	—	—	—	—	—	—	—
	Cheltenham, Borough -	—	—	—	—	—	—	—	—	—	—	—
	Cirencester, Town and Borough.	No return made.										
	Gloucester, City and County of City and Borough.	—	—	—	—	—	—	—	—	—	—	—
	Tewkesbury, Borough -	—	—	—	23	—	—	6	1 10 0	3 3 0	Magistrates' Clerk.	Magistrates' Clerk.
	Wootton-under-Edge, Town.	No return made.										
	Bisley, Manor - -	Transferred to County.										
	Churchdown, Manor -											
	Cirencester, 7 Hundreds of											
	Hempstede, Manor - -											
	Presbury, Manor - -											
	Stow-in-the-Wold, Manor											
	Netherswell, Manor -											
	Total for County of Gloucester -	—	—	—	107	—	6	23	7 11 6	10 5 0		
HANTS -	14 Subdivisions of the County.	Not stated.										
	Andover, Borough - -	Not stated.										
	Basingstoke, Town - -	175	—	—	7	36	2	5	1 7 6	1 4 0	½ to informer, ½ Town Treasr.	Justices' Clerk.
	Newport (Isle of Wight), Borough.	Transferred to County.										
	Portsmouth, Borough -	215	131	15	18	70	4	17	6 12 0	7 13 0	Boro' Treasurer	Prosecutor.
	Ryde (Isle of Wight), Town.	No return made.										
	Southampton, Borough -	,,										
	Winchester, City - -	,,										
	Stockbridge, Borough and Manor.	,,										
	Total for County of Hants - -	390	131	15	25	106	7	22	7 19 6	8 17 0		

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Hereford-shire.	9 Subdivisions of the County.	—	—	—	—	—	—	—	—	—	—	—
	Hereford, City and Borough.	—	—	—	—	—	—	—	—	—	—	—
	Leominster, Borough -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Hereford -	—	—	—	—	—	—	—	—	—		
Hertford-shire.	- - - - - -	—	—	—	—	—	—	12	6 7 0	—	Magistrates' Clerk.	
	Bishop's Stortford, Town	No return made.										
	Hemel Hempsted, Town -	"										
	Hertford, Borough - -	18	—	—	11	—	—	1	1 0 0	0 8 0	½ Boro'Treasurer ½ Co. Treasurer.	Justices' Clerk.
	Hitchin, Town - -	No return made.										
	St. Alban's, Borough -	—	—	—	—	15	—	6	1 15 0	4 10 0	Boro' Fund	Justices' Clerk.
	Cheshunt, Manor - -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Herts - -	18	—	—	11	15	—	19	9 2 0	4 18 0		
Huntingdon-shire.	4 Subdivisions of the County, viz.:—											
	Leightonstone, including Borough of Huntingdon.	No seizures or convictions during the year 1866.										
	Hurstingstone - -											
	Norman Cross - -											
	Toseland - - -											
	Huntingdon, Borough -	Transferred to County.										
	Total for County of Hunts - -	—	—	—	—	—	—	—	—	—		
Kent - -	17 Subdivisions of the County, viz.:—											
	Ashford - - -	—	—	—	—	—	—	None	—	—	—	—
	Aylesford, North (Rochester).	213	76	—	117	6	—	23	17 9 6	15 17 11	½ to Inspector, ½ Co. Treasurer.	Informer.
	Aylesford (Upper South).	1,233	—	—	12	—	—	2	8 0 0	0 18 0	"	Justices' Clerk.
	Aylesford (Lower South).	—	—	—	—	—	—	None	—	—	—	—
	Bearstead - - -	—	—	—	16	5	—	47	103 1 6	20 11 0	½ to Inspector, ½ to Co. Rate.	Justices' Clerk.
	Blackheath - -	—	—	—	22	1	3	7	2 17 6	3 13 6	Co. Treasurer	"
	Bromley - - -	24	7	—	46	31	—	20	23 5 0	8 0 0	½ to Inspector, ½ Co. Treasurer.	"
	Cranbrook, Scray -	932	24	—	11	5	—	8	5 16 0	5 0 6	"	"
	Dartford - - -	—	—	—	63	7	—	11	6 15 0	5 3 0	"	"
	Faversham - -	—	—	20	12	—	—	31*	—	—	—	—
	Home Division of St. Augustine.	—	—	5	23	22	—	20	9 5 6	8 4 0	½ to Inspector, ½ Co. Treasurer.	Justices' Clerk.
	Isle of Sheppey - -	1,420	356	—	—	—	—	—	—	—	—	—
	Ramsgate (East Kent, Division of).	—	—	—	3	13	2	4	0 13 0	1 4 0	½ to Inspector, ½ Co. Treasurer.	Justices' Clerk.
	Sevenoaks - -	—	—	—	170	3	1	21	24 3 0	9 7 6	"	"
	Shepway, Upper Division.	—	—	—	68	1	—	18	10 7 6	10 15 0	"	"
	Tunbridge Wells -	662	—	—	12	—	2	9	0 8 6	5 8 0	"	"
	Wingham - -	—	—	—	8	1	2	7	7 4 0	2 19 0	"	"
	Bexley, Parish - -	Transferred to County.										
	Canterbury, City - -	513	—	27	—	—	—	—	—	—	—	—
	Chatham, Town - -	No return made.										
	Dartford, Parish - -	Transferred to County.										
	Deal, Town - - -	—	—	—	—	—	—	—	—	—	—	—
	Dover, Borough - -	No return made.										
	Faversham, Borough -	—	—	—	Not stated			4	2 5 0	2 4 0	Boro' Treasurer	Complainant.
	Folkestone, Borough -	—	—	—	—	—	—	—	—	—	—	—
	Gravesend and Milton, Borough.	—	—	—	—	—	—	—	—	—	—	—
	Hythe, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Lydd, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Maidstone, Borough -	—	—	—	—	—	—	—	—	—	—	—
	Queenboro', Borough -	48	330	16	—	—	—	—	—	—	—	—
	Ramsgate, Town - -	—	—	—	—	—	—	—	—	—	—	—
	Rochester, City - -	200	25	30	3	—	—	2	0 2 0	1 1 0	½ to City Fund, ½ to Inspector.	Justices' Clerk.
	Romney, New, Borough -	48	4	2	—	—	—	—	—	—	—	—
	Sandwich, Borough -	—	—	—	—	—	—	—	—	—	—	—

* The number and amount of penalties is not stated in the return.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
									£ s. d.	£ s. d.		
KENT—*cont.*	Sheppey, Parish of Minster in.	Transferred to County.										
	Tenterden, Borough	—	—	—	—	—	—	—	—	—	—	—
	Woolwich, Parish of St. Mary.	No return made.										
	Brasted, Manor	—	—	—	—	—	—	—	—	—	—	—
	Lewisham, Manor	—	—	—	9	—	—	1	1 0 0	—	—	—
	Swanscombe, Manor	No return made.										
	Total for County of Kent	5,293	822	100	595	95	35	235	222 13 0	100 6 5		
LANCASHIRE	17 Subdivisions of the County, viz.:—											
	Ashton-under-Lyne	—	—	—	27	6	—	20	3 5 6	10 0 0	Co. Treasurer	Magistrates' Clerk.
	Bacup	—	—	4	45	—	—	17	4 7 0	9 18 6	,,	,,
	Blackburn, Higher	—	—	—	16	—	—	10	8 10 0	5 12 0	,,	,,
	Blackburn, Lower	—	—	—	29	106	28	47	21 6 0	30 11 0	,,	,,
	Bolton	—	—	—	9	24	—	28	12 19 0	14 3 4	,,	,,
	Bury	—	—	2	138	3	—	24	15 0 0	12 8 6	,,	,,
	Garstang	—	—	—	25	—	—	9	8 12 6	5 8 0	,,	,,
	Kirkdale	83	—	1	85	51	—	31	17 0 6	15 10 0	,,	,,
	Kirkham	—	—	2	62	—	—	19	7 17 0	7 16 0	,,	,,
	Leyland	—	—	6	12	14	—	10	13 14 9	4 16 0	,,	,,
	Lonsdale, North	—	—	—	16	—	—	5	0 18 6	2 17 0	,,	,,
	Lonsdale, South	—	—	—	—	—	1	1	0 10 0	0 10 6	,,	,,
	Manchester	—	—	—	48	—	—	28	46 7 6	13 13 0	,,	,,
	Ormskirk	—	—	—	43	5	—	16	6 17 6	9 0 0	,,	,,
	Prescot	—	—	—	Not stated			40	44 11 0	—	,,	,,
	Rochdale	1,435	2	53	28	—	—	16	8 12 6	9 0 6	,,	,,
	Warrington	—	—	—	22	10	—	15	3 1 0	7 17 6	,,	,,
	Ashton-under-Lyne, Boro'	—	—	4	Not stated			5	0 14 0	2 12 6	Boro' Fund	Boro' Fund.
	Accrington, Town	No return made.										
	Blackburn, Borough	—	—	—	32	82	—	14	3 7 7	5 12 0	Boro' Fund	3*l.* 10*s.* Boro' Fund; 2*l.* 2*s.* Police Fund.
	Bolton, Borough	5,233	—	39	29	—	—	8	1 15 0	3 10 6	Clerk to Boro' Justices.	Clerk to Boro' Justices.
	Clitheroe, Borough	—	—	—	—	—	—	—	—	—	—	—
	Lancaster, Borough	No return made.										
	Liverpool, Borough	34,620	2,100	176	81	7	—	80	116 10 0	18 0 0	Boro' Treasurer	Boro' Treasurer.
	Manchester, Borough	36,947	1,818	317	64	8	3*	113	178 5 0	46 10 0	City Fund	City Fund.
	Oldham, Borough	—	—	—	—	—	—	—	—	—	—	—
	Preston, Borough	2,160	—	—	5	—	—	2	0 7 6	1 3 0	Magistrates' Clerk.	Magistrates' Clerk.
	Salford, Borough	3,217	17	32	—	—	—	9	20 0 0	3 16 6	Boro' Fund	Boro' Fund.
	Staleybridge, Borough	—	—	—	13	—	—	5	0 6 6	2 10 0	,,	Justices' Clerk.
	Warrington, Borough	No return made.										
	Wigan, Borough	—	—	—	—	—	—	—	—	—	—	—
	Bury Market, Borough	—	—	—	—	—	—	—	—	—	—	—
	Manchester, Manor	Transferred to Borough of Manchester.										
	Rochdale, Manor	No return made.										
	Total for County of Lancaster	83,695	3,937	636	829	316	32	572	544 15 10	242 16 4		
LEICESTERSHIRE.	7 Subdivisions of the County, viz.:—											
	1. District	—	—	2	14	4	—	2	1 16 6	1 5 6	½ to Co. Rate, ½ to Police Fund.	Co. Rate.
	2. ,,	—	—	4	6	47	—	11	4 2 0	6 9 0	,,	,,
	3. ,,	—	—	—	10	31	—	3	1 2 0	1 12 0	,,	,,
	4. ,,	—	—	6	21	3	—	12	6 17 0	7 12 0	,,	,,
	5. ,,	—	—	—	—	6	—	1	2 0 0	0 11 0	,,	,,
	6. ,,	—	—	—	21	5	—	3	2 1 0	1 13 6	,,	,,
	7. ,,	—	—	3	5	118	2	18	28 1 0	10 6 0	,,	,,
	Leicester, Borough	275	—	—	—	—	7	7	4 13 6	1 12 6	Boro' Fund	Justices' Clerk.
	Total for County of Leicester	275	—	15	77	214	9	57	50 13 0	31 1 6		
LINCOLNSHIRE.	The County divided into 3 Ridings or Parts:—											
	I.—Parts of Lindsey — Spilsby, Louth, Brigg, Horncastle, Market Rasen, Lincoln, West, Winterton, Gainsboro'	26	3	20	17	—	—	19	4 5 6	10 1 0	½ to Police Fund, ½ to Co. Rate.	Magistrates' Clerk and Police Rate.

* The return states that three balances, &c. seized in the borough of Manchester includes two beams and scales and one machine seized in the market and market places in accordance with the Manchester Local Act, there being no power given to seize scales in the General Act.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Lincoln—*cont.*	II.—Parts of Holland - Boston - - - Spalding - - - Holland, Elloe - - Kirton and Kirbeck -	—	—	—	16	—	—	8	0 6 6	4 8 0	½ to Police Fund, ½ to Co. Rate.	Magistrates' Clerk and Police Rate.
	III.—Parts of Kesteven - Bourn - - - Sleaford - - - Lincoln, South - Grantham - -	20	3	4	32	34	7	24	10 16 0	12 6 0	,,	,,
	Boston, Borough - -	—	—	—	—	18	—	2	0 10 0	0 13 0	½ to Boro' Rate, ½ to Inspector.	Justices' Clerk.
	Grantham, Borough -	—	—	—	41	—	—	16	6 10 9	7 4 0	½ to Boro' Fund, ½ to informer.	Magistrates' Clerk.
	Great Grimsby, Borough -	No return made.										
	Lincoln, City and County of City.	13	—	—	Not stated.			1	0 11 0	0 9 0	City Fund	Magistrates' Clerk.
	Louth, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Spalding, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Stamford, Borough - -	—	—	—	—	—	—	—	—	—	—	—
	Alford, Manor - -	Transferred to County.										
	Total for County of Lincoln -	59	6	24	106	52	7	70	22 19 9	35 1 0		
Middlesex -	4 Subdivisions of the County, viz.:—											
	1. Tower Hamlets -	—	—	—	632	495	—	330	458 0 0	- - -	½ Co. Treasurer, ½ to Inspector.	—
	2. Clerkenwell - -	—	—	—	54	248	—	125	156 12 6	Not known	,,	—
	3. Bloomsbury - -	—	—	—	191	156	—	103	101 17 6	16 11 6	,,	Justices' Clerk.
	4. Brentford - -	—	—	—	149	266	39	108	79 1 0	43 4 0	,,	,,
	Chelsea, Parish of St. Luke	Transferred to County.										
	Islington, Parish of St. Mary	No return made.										
	Kensington, Parish of St. Mary Abbots.	Transferred to County.										
	London, City - - -	766	565	124	97	133	5	50	18 3 6	5 16 0	Chamberlain of London.	Chamberlain of London.
	Founders' Company - Metropolitan Board of Works - - -	No return.										
	Paddington, Parish of -	No account kept.						15	6 2 6	1 2 0	Vestry	Police Court.
	St. Marylebone, Parish -	—	—	24	Not stated.			37	17 9 6	- - -	Parish Treasurer	—
	St. Pancras, Parish -	Not stated.						85	27 18 6	1 2 0	Directors of the Poor of St. Pancras.	Directors of the Poor of St. Pancras.
	Tower of London, Liberty	—	—	—	21	23	—	19	20 0 0	2 17 0	½ to the Liberty, ½ to Inspector.	Justices' Clerk.
	Westminster, City & Liberty	—	—	—	16	—	1	327	112 17 0	- - -	½ to High Bailiff, ½ to Court of Burgesses.	—
	St. John of Jerusalem, Manor	Transferred to County.										
	Savoy, Manor - -	,,										
	The Rolls, Liberty of -	,,										
	Heston, Parish (Manor of Isleworth).	,,										
	Isleworth, Parish (Manor of Isleworth).	,,										
	Twickenham, Parish (Manor of Isleworth).	,,										
	Total for County of Middlesex -	766	565	148	1,160	1,321	45	1,199	998 2 0	70 12 6		
Monmouthshire.	Monmouth, Borough -	No return made.										
	Newport, Borough - -	—	—	—	57	—	—	2	2 0 0	1 0 0	½ Town Council, ½ to informer.	Magistrates Clerk.
	Total for County of Monmouth -	—	—	—	57	—	—	2	2 0 0	1 0 0		
Norfolk -	15 Subdivisions of the County, viz.:—											
	Acle - - -	—	—	—	—	—	—	—	—	—	—	—
	Aylsham - - -	—	—	—	—	—	—	—	—	—	—	—
	Dereham - - -	—	—	—	1	1	—	8	1 15 6	3 19 0	Justices' Clerk	Justices' Clerk.
	Docking - - -	—	—	—	—	—	—	—	—	—	—	—
	Downham - - -	—	—	—	—	—	—	—	—	—	—	—
	Harling - - -	—	—	—	—	—	2	2	0 12 0	1 8 0	½ to Police Fund, ½ to Co. Rate.	Justices' Clerk.
	Holt - - - -	—	—	2	3	—	—	2	0 5 0	1 4 9	Magistrates Clerk	,,
	Loddon - - -	—	—	—	—	—	—	—	—	—	—	—
	Norwich - - -	—	—	—	Not stated.			4	3 4 0	1 12 0	Co. Treasurer	Justices' Clerk.
	Walsham - - -	No seizure during the year 1866.										

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
NORFOLK—*cont.*	Subdivisions of County—*cont.*								£ s. d.	£ s. d.		
	Pulham	—	—	—	2	—	7	8	4 8 6	4 18 0	Co. Treasurer	Justices' Clerk.
	Swaffham	—	—	—	—	—	—	—	—	—	—	—
	Torrington	—	—	—	—	—	2	2	2 7 0	1 3 0	Co. Treasurer	Justices' Clerk.
	Walsingham	—	—	—	3	—	1	4	0 19 10	1 19 8	½ to Police Fund, ½ to Co. Rate.	„
	Wymondham	—	—	—	1	—	—	5	2 18 0	2 12 6	Justices' Clerk	„
	Buckenham, New, Borough	—	—	—	—	—	—	—	—	—	—	—
	King's Lynn, Borough	No return made.										
	Norwich, City and County of City.	2,883	209	371	177	136	3	42	41 14 6	44 15 6	City Treasurer	Magistrates' Clerk.
	Thetford, Borough	None during 1866.										
	Walsham, North, Parish	Transferred to County.										
	Yarmouth, Borough	429	—	—	—	—	—	—	—	—	—	—
	Total for County of Norfolk	3,312	209	373	187	137	15	77	58 4 4	63 12 5		
NORTHAMPTON.	County	51	222	2	51	222	2	116	55 17 9	75 15 3	Co. Treasurer	Magistrates' Clerk.
	Daventry, Borough	No return made.										
	Higham Ferrers, Borough	„										
	Northampton, Borough	—	—	—	287	4	—	65	13 9 6	22 2 6	Boro' Treasurer	Magistrates' Clerk.
	Peterborough, Liberty of	20	—	13	50	20	—	5	2 0 0	3 18 0	Treasurer of City	Justices' Clerk.
	Total for County of Northampton	71	222	15	388	246	2	186	71 7 3	101 15 9		
NORTHUMBERLAND.	6 Subdivisions of the County, viz.:—											
	Castle Ward, East	—	—	—	—	—	—	—	—	—	—	—
	Castle Ward, West	—	—	—	—	—	—	—	—	—	—	—
	Coquetdale Ward, &c.	—	—	6	11	3	—	16	1 7 6	—	Co. Treasurer	Justices' Clerk.
	Morpeth Ward, &c.	—	—	—	—	—	—	—	—	—	—	—
	Norham Ward, &c.	—	—	—	2	—	—	3	0 12 6	1 15 8	Co. Treasurer	Justices' Clerk.
	Tindale Ward, &c.	—	—	—	—	—	—	—	—	—	—	—
	Berwick-upon-Tweed, County of the Borough and Town.	—	—	—	—	—	—	—	—	—	—	—
	Newcastle-on-Tyne, Town and County.	—	—	—	—	—	—	—	—	—	—	—
	Tynemouth, Borough	—	—	—	19	10	—	11	9 7 0	3 11 6	Boro' Fund	Boro' Fund.
	Alnwick, Manor and Borough.	Not stated.										
	Corbridge, Prudhoe, and Newburn, Manor and Barony.	„										
	Hexham, Manor	No return made.										
	Rothbury, Manor	Not stated.										
	Warkworth, &c., Manor and Borough.	„										
	Total for County of Northumberland	—	—	6	32	13	—	30	11 7 0	5 7 2		
NOTTINGHAM	6 Subdivisions of the County.	—	—	—	3	—	1	15	2 4 3	6 14 9	Co. Treasurer	Co. Treasurer.
	Newark, Borough	—	—	—	—	—	—	—	—	—	—	—
	Nottingham, Town and County of Town.	—	—	1	104	12	2	27	36 7 6	15 7 6	Boro' Fund	Justices' Clerk.
	Retford, East, Borough	Transferred to County.										
	Total for County of Nottingham	—	—	1	107	12	3	42	38 11 9	22 2 3		
OXFORDSHIRE		—	—	—	20	129	—	50	14 2 0	7 14 10	½ to Police Fund, ½ to Co. Treasurer.	Co. Treasurer.
	Banbury, Borough	—	—	—	—	—	—	—	—	—	—	—
	Chipping Norton, Borough	No return made.										
	Oxford, University	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Oxford	—	—	—	20	129	—	50	14 2 0	7 14 10		
RUTLAND		—	—	—	13	—	—	9	2 5 0	4 13 6	Co. Treasurer	½ to Justices' Clerk. ½ to Police Rate.
	Total for County of Rutland	—	—	—	13	—	—	9	2 5 0	4 13 6		

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.			Amount of Costs.			To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£	s.	d.	£	s.	d.		
Salop	2 Subdivisions of the County, viz.:—															
	1. North	Not known.			16	154	40	82	64	1	2	30	8	8	Co. Treasurer	½ to Magistrates' Clerk, ½ to Co. Treasurer.
	2. South	47	—	44	98	113	15	102	79	6	0	35	16	6	„	½ to Police, ½ to Magistrates' Clerk.
	Bridgnorth, Borough	—	—	—	—	—	—	—	—			—			—	—
	Ludlow, Borough	—	—	—	Not stated.			4	1	1	6	1	17	6	⅓ to Inspector, ½ to Boro' Rate.	Justices' Clerk.
	Oswestry, Borough	351	22	—	—	—	—	—	—			—			—	—
	Shrewsbury, Borough	—	—	—	—	—	—	—	—			—			—	—
	Wenlock, Borough	Not known.			33	41	11	35	21	0	0	19	3	0	½ to informer, ½ Boro' Treasr.	Magistrates' Clerks.
	Total for County of Salop	398	22	44	147	308	66	223	165	8	8	87	5	8		
Somerset-shire.	15 Subdivisions of the County, viz.:—															
	Axbridge	—	—	—	—	—	—	—	—			—			—	—
	Bridgewater	—	—	—	—	—	—	—	—			—			—	—
	Dunster	—	—	—	—	—	—	—	—			—			—	—
	Frome	—	—	—	13	1	1	7	3	0	0	2	7	10	Magistrates' Clerks.	Magistrates' Clerks.
	Glastonbury	—	—	—	—	—	—	—	—			—			—	—
	Ilminster	—	—	—	12	37	—	14	8	0	0	5	5	0	Co. Treasurer	Magistrates' Clerk.
	Long Ashton	—	—	—	14	—	—	2	0	10	0	0	16	0	½ to Co. Treasr., ½ to Police Fund.	„
	Somerton	—	—	—	3	—	—	3	0	7	0	1	2	6	Co. Treasurer	„
	Taunton	—	—	—	15	—	2	6	1	18	0	1	19	0	„	„
	Temple Cloud	—	—	—	—	31	—	8	5	17	6	2	4	0	„	„
	Weston	—	—	—	—	—	—	—	—			—			—	—
	Williton	—	—	—	—	—	—	—	—			—			—	—
	Wincanton	—	—	—	—	—	—	—	—			—			—	—
	Wiveliscombe	—	—	—	12	—	—	3	0	2	6	0	11	6	½ to Police Fund, ½ to Co. Treasurer	Magistrates' Clerk.
	Yeovil	—	—	—	18	—	3	9	7	0	0	2	18	6	Co. Treasurer	„
	Axbridge, Borough	—	—	—	—	—	—	—	—			—			—	—
	Bath, City and Borough	4,775	—	—	5	41	2	17	6	18	0	Not known			Boro' Treasurer	Magistrates' Clerk.
	Bridgewater, Borough	—	—	—	Not stated.			2	0	1	0	0	18	0	Boro' Fund	„
	Bristol, City and County of City.	—	—	—	37	10	—	20	11	8	6	9	9	0	½ to Boro' Fund, ½ to Inspector.	Boro' Fund.
	Glastonbury, Borough	Transferred to County.														
	Wells, Borough	„														
	Yeovil, Borough	—	—	—	10	—	—	3	0	18	0	0	19	6	Boro' Fund	Justices' Clerk.
	Williton and Watchett, Manors of.	—	—	—	—	—	—	—	—			—			—	—
	Wiveliscombe, Borough and adjacent Manors.	—	—	—	—	—	—	—	—			—			—	—
	Total for County of Somerset	4,775	—	—	139	120	8	94	46	0	6	28	10	10		
Stafford-shire.	County	—	—	—	745	—	—	242	165	13	1	89	3	0	—	
	Bilston, Market	—	—	—	—	—	—	—	No return made.						—	—
	Burslem, Town	—	—	—	—	—	—	—	„						—	—
	Hanley, Market	—	—	—	—	—	—	—	—			—			—	—
	Lichfield, City	No return made.														
	Newcastle-under-Lyne, Borough.	—	—	2	54	7	—	10	2	14	6	3	19	0	Boro' Fund	Justices' Clerk.
	Stafford, Borough	—	—	4	48	—	—	10	1	6	0	4	0	0	„	„
	Tamworth, Borough	40	10	9	—	—	—	—	—			—			—	—
	Walsall, Borough	—	—	—	9	—	2	4	2	1	0	1	2	0	Boro' Fund	Boro' Fund.
	Wolverhampton, Borough	—	—	—	7	—	—	7	1	5	0	2	7	6	Not stated	Not stated.
	Total for County of Stafford	40	10	15	863	7	2	273	172	19	7	100	11	6		
Suffolk	2 Divisions of the County:—															
	East Suffolk, 5 districts, viz.:—															
	Beccles	—	—	—	—	—	2	2	0	5	0	0	15	0	Co. Treasurer	Justices' Clerk.
	Yoxford	—	—	—	3	—	1	4	1	6	0	1	11	6	½ to Co. Rate, ½ to Police Fund.	„
	Suffolk	—	—	—	Not stated.			8	8	2	6	4	1	0	Co. Treasurer	„
	Woodbridge	—	—	—	—	—	—	—	—			—			—	—
	Ipswich	—	—	—	—	—	—	—	—			—			—	—

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
Suffolk—*cont.*	West Suffolk Head Quarters,—								£ s. d.	£ s. d.		
	Bury St. Edmund's	—	—	—	11	—	—	2	1 14 0	0 16 0	½ to Co. Rate, ½ to Police Fund.	Justices' Clerk.
	4 districts, viz.:—											
	Cosford	—	—	3	3	—	—	4	3 10 0	0 19 6	,,	,,
	Mildenhall	—	—	—	16	—	—	2	1 0 0	0 18 0	,,	,,
	Clare	—	—	—	1	—	—	1	1 10 0	0 8 6	,,	,,
	Ixworth	—	—	—	—	—	—	—	—	—	—	—
	Aldeburgh, Borough	84	—	—	—	—	—	—	—	—	—	—
	Bury St. Edmund's, Borough.	None proceeded against.										
	Eye, Borough	—	—	—	—	—	—	—	—	—	—	—
	Halesworth, Town	Transferred to County.										
	Ipswich, Borough	36	16	4	4	3	—	—	—	—	—	—
	Orford, Borough	No return made.										
	Southwold, Borough and Manor.	—	—	—	—	—	—	—	—	—	—	—
	Stowmarket, Town	Transferred to County.										
	Sudbury, Borough	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Suffolk	120	16	7	38	3	3	23	17 7 6	9 9 6		
Surrey	11 Subdivisions of the County, viz.:—											
	A. (West) District	733	893	420	683	511	207	372	564 11 6	None	½ to Inspector, ½ Co. Treasurer.	No costs allowed.
	A. (East) ,,	—	—	—	716	722	131	495	803 16 6	,,	,,	,,
	B. ,,	—	—	—	52	52	19	44	45 19 0	29 12 0	,,	Clerk to Petty Sessions.
	C. ,,	—	—	—	63	75	56	85	61 7 0	—	,,	—
	D. (Guildford) ,,	—	—	—	—	41	—	10	6 9 0	9 2 0	½ to Police Fund, ½ to Co. Rate.	½ to Police Rate, ½ to Co. Rate.
	E. (Reigate) ,,	—	—	—	7	—	—	7	3 7 6	4 18 0	,,	,,
	No. 1 (Chertsey) ,,	—	—	3	4	4	—	5	2 3 6	4 7 0	,,	Magistrates' Clerks.
	,, 2 (Farnham) ,,	—	—	3	4	8	—	7	2 10 0	4 0 6	,,	,,
	,, 3 (Dorking) ,,	—	—	—	10	—	—	4	0 15 6	2 16 0	,,	½ to Police Rate, ½ to Co. Rate.
	,, 4 (Godstone) ,,	No account kept			4	10	—	7	7 6 0	6 2 0	½ Chief Constable, ½ Magistrates' Clerk.	Magistrates' Clerks.
	,, 5 (Godalming) ,,	—	—	—	6	40	—	13	7 6 6	11 18 0	½ to Police Fund, ½ to Co. Rate.	½ to Police Rate, ½ to Co. Rate.
	Battersea, Parish of	Transferred to County.										
	Camberwell, Parish of St. Giles.	—	—	—	—	—	—	—	—	—	—	—
	Clapham, Parish	Transferred to County.										
	Godalming, Borough	,,										
	Guildford, Borough	711	25	24	3	—	—	2	0 1 0	1 2 0	½ Boro' Treasurer ½ to Police Fund.	Magistrates' Clerk.
	Kingston, Borough	No return made.										
	Mitcham, Parish	Transferred to County.										
	Southwark, Town and Borough.	,,										
	Streatham, Parish	No return made.										
	Croydon, Manor	,,										
	Southwark, Manor	,,										
	Total for County of Surrey	1,444	918	450	1,552	1,463	413	1,051	1,505 13 0	73 17 6		
Sussex	11 Subdivisions of the County, viz.:—											
	Arundel and Worthing	—	—	—	—	—	—	—	—	—	—	—
	Battle	1,547	—	—	Not stated.			3	2 2 0	2 11 9	½ to Inspector, ½ to Co. Rate.	Justices' Clerk.
	Chichester	—	—	—	6	—	—	1	1 0 0	0 11 0	Police Fund	,,
	East Grinstead	439	—	—	1	10	—	1	0 10 0	0 13 6	½ to Inspector, ½ to Co. Rate.	,,
	East Sussex, No. 2	52	—	—	8	—	—	2	10 0 0	1 6 0	,,	,,
	Horsham	—	—	—	—	—	1	1	0 2 6	0 11 6	Police Fund	,,
	Lewes	203	35	18	29	2	—	13	4 13 3	6 6 6	½ to Inspector, ½ to Co. Rate.	,,
	Mansfield	53	—	3	—	—	—	1	2 0 0	0 12 4	,,	,,
	Midhurst	—	—	—	—	—	—	—	—	—	—	—
	Petworth	—	—	—	4	—	—	2	1 9 0	2 11 0	Police Fund	Justices' Clerk.
	Steyning	—	—	—	1	—	—	1	3 0 0	0 12 0	,,	,,
	Arundel, Borough	—	—	—	1	—	—	1	1 0 0	0 6 6	Boro' Fund	,,
	Battle, Town	Transferred to County.										
	Brighton, Borough	146	122	42	1	—	—	1	0 5 0	0 8 6	Boro' Treasurer	Magistrates' Clerk.
	Chichester, City	—	—	—	—	—	—	—	—	—	—	—
	East Grinstead, Town	Transferred to County.										

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.			Amount of Costs.			To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£	s.	d.	£	s.	d.		
Sussex—*cont.*	Hastings, Borough	814	—	1	1	—	—	1	1	6	0	0	14	0	½ to informer, ½ Boro' Treasurer	Justices' Clerks.
	Pevensey, Liberty of	23	10	3	6	1	2	3	0	1	6	2	3	0	½ to Inspector, ½ to Co. Rate.	,,
	Rye, Borough	—	—	—	—	—	—	—	—			—			—	—
	Winchelsea, Borough	No return made.														
	Worthing, Town	Transferred to County.														
	Total for County of Sussex	3,277	167	67	58	13	3	31	27	9	3	19	7	7		
Warwick	5 Hundreds of the County, viz.:—															
	Barlickway	—	—	1	4	—	5	1	1	0	0	1	6	0	½ to Police Fund, ½ to Co. Rate.	Inspector.
	Hemlingford, Part 1	—	—	—	1	—	3	4	7	0	0	1	4	0	,,	,,
	,, Part 2	—	—	—	—	—	—	—							—	—
	Kineton	—	—	—	—	—	—	—							—	—
	Knightlow	—	—	—	—	—	—	—							—	—
	Birmingham, Borough	16,083	828	45	243	193	9	83	17	8	0	39	9	6	Corporation	Corporation.
	Coventry, City	—	—	—	—	—	—	—							—	—
	Leamington, Parish	783	—	46	4	—	2	2	0	15	0	1	0	0	½ to Inspector, ½ Co. Treasurer.	Justices' Clerk.
	Stratford-on-Avon, Borough.	—	—	—	—	—	—	—							—	—
	Sutton Coldfield, Royal Town, Manor of.	—	—	—	—	—	—	—							—	—
	Warwick, Borough	Not stated.														
	Total for County of Warwick	16,866	828	92	252	193	19	90	26	3	0	42	19	6		
Westmorland.	County	1,754	56	—	—	—	—	—							—	—
	Kirby-in-Kendal, Borough	Transferred to County.														
	Total for County of Westmorland	1,754	56	—	—	—	—	—								
Wiltshire	9 Subdivisions of the County, viz.:—															
	Bradford	—	—	—	—	—	—	—							—	—
	Hindon	97	—	—	—	—	—	—							—	—
	Swindon	757	—	9	—	—	—	—							—	—
	Warminster	461	5	10	—	—	—	—							—	—
	Devizes	1,149	—	—	Not stated.			2	1	0	0	0	14	0	½ to Pol. Fund, ½ Co. Treasurer.	Magistrates' Clerk.
	Malmesbury	246	—	—	—	6	—	1	0	3	0	0	7	0	,,	,,
	Marlborough, Everley, Pewsey	461	—	2	—	—	—	—							—	—
	Chippenham	131	—	—	—	—	—	—							—	—
	Salisbury	—	—	—	4	—	—	1	0	10	0	0	8	6	½ to Pol. Fund, ½ Co. Treasurer.	Magistrates' Clerk.
	Devizes, Borough	No return made.														
	Marlborough, Borough	—	—	—	—	—	—	—							—	—
	Sarum, New, City and Borough.	732	49	1	43	—	—	3	10	0	0	1	8	6	½ to City Treasurer, ½ to informer.	Justices' Clerks.
	Swindon, Market	No return made.														
	Aldborne, Manor	,,														
	Trowbridge, Manor	Transferred to County.														
	Total for County of Wilts	4,034	54	22	47	6	—	7	11	13	0	2	18	0		
Worcestershire.	9 Subdivisions of the County, viz.:—															
	Bromsgrove	—	—	—	Not stated.			3	0	1	2		—		County Treasurer.	Magistrates' Clerks.
	Halesowen	—	—	—	17	3	—	12	0	16	0	5	17	6	,,	Magistrates' Clerk.
	Hundred House and Tenbury.	—	—	6	9	18	—	13	3	9	0	5	11	0	,,	Magistrates' Clerks.
	Northfield	—	—	6	23	—	—	9	2	3	6	4	14	6	,,	Justices' Clerk.
	Pershore	—	—	—	—	6	2	3	0	13	6	1	1	0	,,	Magistrates' Clerks.
	Stourbridge	—	—	3	12	—	—	1	0	1	0	0	12	6	,,	Magistrates' Clerk.
	Stourport	—	—	—	—	—	—	—							—	—
	Upton	—	—	6	22	7	—	16	5	18	0	6	12	0	,,	Magistrates' Clerks.
	Worcester	—	—	5	9	—	—	8	4	0	0	3	12	0	,,	½ Police Rates, ½ to Magistrates' Clerk.
	Dudley, Borough	—	—	—	60	43	3	30	4	13	0	14	3	0		Magistrates' Clerk.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Worcestershire—*cont.*	Bewdley, Borough	—	—	—	—	—	—	—	—	—	—	—
	Droitwich, Borough	—	—	—	Not stated.			1	0 1 0	0 9 6	Boro' Fund	Inspector.
	Dudley, Parish and Boro'	Transferred to County.										
	Evesham, Borough	Transferred to County.										
	Kidderminster, Borough	—	—	—	27	—	2	8	1 1 6	—	½ to Pol. Fund, ½ to Co. Rate.	—
	Stourbridge, Town	Transferred to County.										
	Worcester, City	—	—	—	—	—	—	—	—	—	—	—
	Cutsdam, Manor	No returns made.										
	Evesham, Manor											
	Total for County of Worcester	—	—	26	179	77	7	104	22 17 8	42 13 0		
Yorkshire	East Riding	—	—	—	—	—	—	—	—	—	—	—
	North Riding, 17 Sub-divisions, viz.:—											
	Bulmer	—	—	—	1	8	1	2	0 6 0	2 13 0	½ County Treasurer, ½ Police Fund.	Police Rate.
	Allertonshire	—	—	—	Not stated.			1	0 1 0	0 10 0	,,	,,
	Birdforth	—	—	—	—	—	—	—	—	—	—	—
	Hallikeld	—	—	—	—	—	—	—	—	—	—	—
	Gilling, East	—	—	—	Not stated.			1	0 1 3	0 8 9	½ County Treasurer, ½ Police Fund.	Police Rate.
	Gilling, West	—	—	—	Not stated.			1	0 5 0	0 13 6	,,	,,
	Northallerton	—	—	—	—	—	—	—	—	—	—	—
	Hang, East	—	—	—	—	—	—	—	—	—	—	—
	Hang, West	—	—	—	1	—	—	3	0 15 0	1 16 6	½ County Treasurer, ½ Police Fund.	Police Rate.
	Stokesley	—	—	—	2	—	—	—	—*	1 1 0	,,	,,
	Guisborough	—	—	—	5	—	—	2	0 5 0	1 5 0	,,	,,
	Malton	—	—	—	1	—	—	1	1 0 0	0 7 6	,,	,,
	Pickering Lythe, East	—	—	—	—	—	—	—	—*	0 11 6	,,	,,
	Pickering Lythe, West	—	—	—	—	—	—	—	—	—	—	—
	Ryedale	—	—	—	Not stated.			1	0 1 0	0 11 0	½ County Treasurer, ½ Police Fund.	Police Rate.
	Whitby Strand	—	—	—	Not stated.			2	0 7 6	1 7 6	,,	,,
	Yarn	—	—	—	—	—	—	—	—	—	—	—
	West Riding	No return made.										
	Bradford, Borough	—	—	—	—	—	—	—	—	—	—	—
	Beverley, Borough	1,824	41	14	45	—	—	3	1 0 6	4 10 0	Boro' Treasurer	Justices' Clerk.
	Doncaster, Borough	—	—	—	—	—	—	—	—	—	—	—
	Halifax. See Wakefield, Manor.											
	Hedon, Borough	Transferred to East Riding of County.										
	Hull. See Kingston-on-Hull.											
	Kingston-on-Hull, Boro'	—	—	—	—	—	—	—	—	—	—	—
	Leeds, Borough	15,132	3,137	330	30	20	6	2	1 0 0	0 17 0	Boro' Fund	Clerk to Justices.
	Middlesboro', Borough	—	—	—	—	—	—	19	7 0 0	4 16 4	,,	½ Justices' Clerk, ½ Boro' Fund.
	Pontefract, Borough	—	—	—	6	—	1	1	0 5 0	0 6 0	,,	Justices' Clerk.
	Richmond, Borough	—	—	—	—	—	—	—	—	—	—	—
	Ripon, City or Borough and Liberty.	—	—	—	—	—	—	—	—	—	—	—
	Scarboro', Borough	—	—	—	—	—	—	—	—	—	—	—
	Sheffield, Borough	14,467	598	456	211	297	5	160	114 15 0	58 6 0	Boro' Treasurer	Magistrates' Clerk.
	York, City	There were no weights or measures seized in 1866.										
	Burlington, Manor	Transferred to County.										
	Eccleshall-Bierlow, Manor	Transferred to Borough of Sheffield.										
	Honley, &c., Manor	No Standards kept.										
	Leeds, Kirkgate, &c., Manors	—	—	—	6	2	2	—	—	—	—	—
	Wakefield, Manor, and Town of Halifax.	No return made.										
	Total for County of York	31,423	3,776	800	308	327	15	199	127 2 3	80 0 7		

WALES.

Anglesea		—	—	—	—	—	—	—	—	—	—	—
	Total for County of Anglesea	—	—	—	—	—	—	—	—	—		

* No penalty inflicted.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Brecon	County	—	—	—	25	5	1	31	13 17 6	0 14 0	½ County Treasurer, ½ Police Fund.	Co. Treasurer.
	Brecon, Borough	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Brecon	—	—	—	25	5	1	31	13 17 6	0 14 0		
Carmarthen	County	—	—	—	—	—	—	—	—	—	—	—
	Carmarthen, County of Borough.	No return made.										
	Kidwelly, Borough	25	—	4	—	—	—	1	0 1 0	0 4 0	Boro' Fund	Justices' Clerk.
	Llanelly	Transferred to County.										
	Total for County of Carmarthen	25	—	4	—	—	—	1	0 1 0	0 4 0		
Cardigan	County	—	—	—	—	—	—	—	—	—	—	
	Total for County of Cardigan	—	—	—	—	—	—	—	—	—		
Carnarvon	County	—	—	—	Not stated.			2	3 0 0	1 0 0	Treasurer of Superannuation Fund.	Co. Treasurer.
	Pwllheli, Borough	No return made.										
	Total for County of Carnarvon	—	—	—	—	—	—	2	3 0 0	1 0 0		
Denbigh	County	4,732	111	6	109	44	—	45	15 3 5	15 13 0	Co. Treasurer	Magistrates' Clerk.
	Denbigh, Borough	Transferred to County.										
	Total for County of Denbigh	4,732	111	6	109	44	—	45	15 3 5	15 13 0		
Flint	3 Subdivisions of the County, viz.:—											
	Holywell	—	—	—	17	8	—	16	3 6 6	6 17 6	Co. Treasurer	Justices' Clerk.
	Mold	—	—	—	14	3	—	19	6 19 0	7 2 6	,,	,,
	Overton	—	—	—	—	9	—	2	0 6 0	0 17 0	,,	,,
	Flint, Borough	No return made.										
	Total for County of Flint	—	—	—	31	20	—	37	10 11 6	14 17 0		
Glamorgan	4 Subdivisions of the County, viz.:—											
	Merthyr	—	—	—	—	—	—	—	—	—	—	—
	Newbridge	—	—	—	—	—	—	—	—	—	—	—
	Ogmore	—	—	—	—	—	—	—	—	—	—	—
	Swansea	—	—	—	—	—	—	—	—	—	—	—
	Cardiff, Borough	Transferred to County.										
	Swansea, Borough	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Glamorgan	—	—	—	—	—	—	—	—	—		
Merioneth	County	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Merioneth	—	—	—	—	—	—	—	—	—		
Montgomery	County	—	—	—	75	50	—	47	14 3 0	16 3 0	Co. Treasurer	Justices' Clerk and Co. Treasurer.
	Total for County of Montgomery	—	—	—	75	50	—	47	14 3 0	16 3 0		
Pembroke	County	—	—	—	—	—	—	—	—	—	—	—
	Haverfordwest, Town and County of.	—	—	—	—	—	—	—	—	—	—	—
	Tenby, Borough	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Pembroke	—	—	—	—	—	—	—	—	—		
Radnor	County	—	—	—	—	—	—	—	—	—	—	—
	Rhayader, Borough	No return made.										
	Total for County of Radnor	—	—	—	—	—	—	—	—	—		

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
					SCOTLAND.							
Aberdeen -	3 Districts of the County, viz.:—								£ s. d.	£ s. d.		
	1. Aberdeen - -	—	—	—	—	—	—	—	—	—	—	—
	2. Peterhead - -	—	—	—	—	—	—	—	—	—	—	—
	3. Inverary - -	—	—	—	—	—	—	—	—	—	—	—
	Aberdeen, Royal Burgh -	—	—	—	89	—	2	6	2 5 0	3 9 0	City Chamberlain.	Procurator Fiscal.
	Total for County of Aberdeen -	—	—	—	89	—	2	6	2 5 0	3 9 0		
Argyll -	County - - - -	—	—	—	16	—	—	2	0 10 0	—	Procurator Fiscal.	—
	Campbelltown, Royal Burgh.	No record kept.										
	Oban, Burgh - - -	No return.										
	Total for County of Argyll -	—	—	—	16	—	—	2	0 10 0	—		
Ayr - -	County - - - -	No account kept			194	—	—	58	11 12 6	47 0 7	Procurator Fiscal for the Co.	Procurator Fiscal for the Co.
	Ayr, Royal Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Irvine, Royal Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Kilmarnock, Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Ayr - -	—	—	—	194	—	—	58	11 12 6	47 0 7		
Banff -	County - - - -	—	—	—	—	—	—	—	—	—	—	—
	Banff, Royal Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Banff - -	—	—	—	—	—	—	—	—	—		
Berwick -	County - - - -	637	41	14	—	—	—	—	—	—	—	—
	Lander, Royal Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Berwick -	637	41	14	—	—	—	—	—	—		
Bute - -	County - - - -	—	—	—	—	—	—	—	—	—	—	—
	Rothsay, Royal Burgh -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Bute - -	—	—	—	—	—	—	—	—	—		
Caithness -	County - - - -	—	—	—	2	—	—	2	0 7 6	1 2 0	Co. Treasurer	Justices' Clerk.
	Wick, Royal Burgh -	No Standards in use.										
	Total for County of Caithness -	—	—	—	2	—	—	2	0 7 6	1 2 0		
Clackmannan.	County - - - -	No return made.										
	Total for County of Clackmannan	—	—	—	—	—	—	—	—	—		
Cromarty -	County - - - -	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Cromarty -	—	—	—	—	—	—	—	—	—		
Dumbarton	County - - - -	—	—	—	213	—	—	—	—	—	—	—
	Dumbarton, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Dumbarton -	—	—	—	213	—	—	—	—	—		
Dumfries -	County - - - -	None in 1866.										
	Annan, Royal Burgh -	No return made.										
	Dumfries, Royal Burgh -	None in 1866.										
	Sanquhar, Royal Burgh -	No return made.										
	Total for County of Dumfries -	—	—	—	—	—	—	—	—	—		
Edinburgh	County - - - -	—	—	59	88	—	—	56	23 4 6	7 0 0	County Police Fund.	Clerk to Justices of the Peace, 2*s.* 6*d.* each case.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
									£ s. d.	£ s. d.		
Edinburgh —*cont.*	Edinburgh, City	—	—	—	1,591	27	224	219	52 3 0	—	W. & M. Fund	City's Proper Revenue.
	Leith, Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Edinburgh	—	—	59	1,679	27	224	275	75 7 6	7 0 0		
Elgin	County	—	—	—	—	—	—	—	—	—	—	—
	Elgin, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Elgin	—	—	—	—	—	—	—	—	—		
Fife	County	Not stated.						5	13 11 6	—	Co. Treasurer	—
	Anstruther, East, Royal Burgh.	No return made.										
	Burntisland, Royal Burgh	Nothing stated.										
	Crail, Royal Burgh	Transferred to County.										
	Cupar, Royal Burgh	,,										
	Dunfermline, Royal Burgh	No seizures or prosecutions during the year 1866.										
	Inverkeithing, Royal Burgh.	No record kept.										
	Kinghorn, Royal Burgh	Transferred to County.										
	Kirkcaldy, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Pittenweem, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	St. Andrew's, City and Royal Burgh.	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Fife	—	—	—	—	—	—	5	13 11 6	—		
Forfar	County	—	—	—	—	—	—	—	—	—	—	—
	Arbroath, Royal Burgh	551	40	—	37	2	—	—	—	—	—	—
	Brechin, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Dundee, Royal Burgh	No prosecutions.										
	Forfar, Royal Burgh	Not stated.										
	Montrose, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Forfar	551	40	—	37	2	—	—	—	—		
Haddington	County	—	—	—	—	—	—	—	—	—	—	—
	Berwick, North, Royal Burgh.	Not stated.										
	Dunbar, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Haddington	—	—	—	—	—	—	—	—	—		
Inverness	County	—	—	—	—	—	—	—	—	—	—	—
	Inverness, Royal Burgh	No seizures or convictions.										
	Total for County of Inverness	—	—	—	—	—	—	—	—	—		
Kincardine	County	Not stated.										
	Total for County of Kincardine	—	—	—	—	—	—	—	—	—		
Kinross	County	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Kinross	—	—	—	—	—	—	—	—	—		
Kircudbright.	County	—	—	—	—	—	—	—	—	—	—	—
	Kircudbright, Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Kircudbright	—	—	—	—	—	—	—	—	—		
Lanark	Divided into 3 Wards :—											
	Upper Ward	—	—	—	—	—	—	—	—	—	—	—
	Middle Ward divided into 4 Districts :—											
	Airdrie District	—	—	—	—	—	—	—	—	—	—	—
	Coatbridge District	—	—	—	—	—	—	—	—	—	—	—
	Hamilton District	—	—	—	—	—	—	—	—	—	—	—
	Wishaw District	1,235	—	—	—	—	—	—	—	—	—	—
	Lower Ward	—	—	—	5	—	1	4	0 15 0	—	Co. Treasurer	—
	Airdrie, Burgh	—	—	—	—	—	—	—	—	—	—	—
	Calton, Burgh	Transferred to Burgh of Glasgow.										

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.					
LANARK—*cont.*	Glasgow, City, in 3 Districts and 2 Burghs:—								£ s. d.	£ s. d.		
	Central District	—	—	—	180	—	—	66	40 4 0	None	Police Board	Nil.
	Eastern „	—	—	—	Not stated.			14	6 3 6	„	„	„
	Western „	—	—	—	70	—	—	42*	17 15 6	„	„	„
	Calton, Burgh	—	—	—	—	—	—	—	—	—	—	—
	Gorbals, Barony	—	—	—	—	—	—	—	—	—	—	—
	Lanark, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Partick, Burgh	Transferred to County.										
	Total for County of Lanark	1,235	—	—	255	—	1	126	64 18 0	—		
LINLITHGOW	County	No return made.										
	Total for County of Linlithgow	—	—	—	—	—	—	—	—	—		
NAIRN	Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Nairn	—	—	—	—	—	—	—	—	—		
ORKNEY	County	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Orkney	—	—	—	—	—	—	—	—	—		
PEEBLES	County	—	—	—	—	—	—	—	—	—	—	—
	Peebles, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Peebles	—	—	—	—	—	—	—	—	—		
PERTH	County	—	—	—	—	—	—	—	—	—	—	
	Culross, Royal Burgh	Not stated.										
	Perth, City and Burgh	1,097	364	100	—	—	—	—	—	—	—	—
	Total for County of Perth	1,097	364	100	—	—	—	—	—	—		
RENFREW	County	—	—	—	—	—	—	—	—	—	—	—
	Greenock, Burgh	No inspection until 1867.										
	Paisley, Burgh	4,005	248	—	33	1	—	10	3 11 6	2 2 6	Town Chamberlain.	Burgh Procurator Fiscal.
	Pollockshaws, Burgh	No Standards in use.										
	Renfrew, Royal Burgh	Not stated.										
	Total for County of Renfrew	4,005	248	—	33	1	—	10	3 11 6	2 2 6		
ROSS	County	1,088	2	—	70	—	—		Not stated.			
	Tain, Royal Burgh	131	—	—	—	—	—		Not stated.			
	Total for County of Ross	1,219	2	—	70	—	—	—	—	—		
ROXBURGH	County	147	—	3	151	—	—	38	17 8 6	19 6 6	Co. Rate	Justices' Clerk.
	Total for County of Roxburgh	147	—	3	151	—	—	38	17 8 6	19 6 6		
SELKIRK	County and Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Selkirk	—	—	—	—	—	—	—	—	—		
STIRLING	County	—	—	—	—	—	—	—	—	—	—	—
	Falkirk, Parliamentary Burgh.	Not stated.										
	Stirling, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Stirling	—	—	—	—	—	—	—	—	—		
SUTHERLAND	County	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Sutherland	—	—	—	—	—	—	—	—	—		
WIGTOWN	County and Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Stranraer, Royal Burgh	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Wigtown	—	—	—	—	—	—	—	—	—		

* And one person admonished.

Appendix III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	To whom Penalties paid.	To whom Costs paid.
		Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.		£ s. d.	£ s. d.		
Zetland	Lordship	No return made.										
	Total for County of Zetland	—	—	—	—	—	—	—	—	—		
Jersey	Island of	—	—	—	25	—	—	A number of false weights of lead, stone, brass, iron, china, &c., have been confiscated by the Viscount of Jersey.				
	Total for Jersey	—	—	—	25	—	—	—	—	—		
Man, Isle of	District No. 1	—	—	—	139	49	22	56	8 18 11	52 4 8	½ to High Bailiff, ¼ to Regulator, ¼ to Constables.	To Regulator of Weights and Measures, who is the Public Prosecutor.
	„ No. 2	—	—	—	—	1	—					
	„ No. 3	1,031	56	—	18	12	—					
	„ No. 4	No return.										
	„ No. 5	„										
	Total for Isle of Man	1,031	56	—	157	62	22	56	8 18 11	52 4 8		

SUMMARY OF ABSTRACT C.

ENGLAND.

Counties.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	Average Amount in each County for a single Conviction.	
	Weights.	Measures.	Balances, &c.	Weights.	Measures.	Balances, &c.				Amount of Penalty.	Amount of Cost.
								£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bedford	—	—	8	11	24	2	22	8 7 6	11 8 6	0 7 7	0 10 7
Berks	263	3	10	46	16	—	11	7 14 0	4 11 0	0 14 6	0 8 3
Bucks	10,643	338	100	—	—	—	41	10 4 0	13 10 0	0 4 11	0 6 7
Cambridge	—	—	2	13	22	—	7	4 3 0	5 6 6	0 11 10	0 15 2
Chester	600	9	21	153	55	10	87	47 10 9	33 16 6	0 10 11	0 7 9
Cornwall	—	—	—	84	14	2	76	46 3 0	28 15 6	0 12 1	0 7 6
Cumberland	10,322	819	—	180	61	21	103	26 1 6	38 0 0	0 5 0	0 7 4
Derby	—	—	21	161	39	4	100	53 11 0	58 17 6	0 8 4	0 12 3
Devon	11,207	254	708	236	10	12	126	41 9 3	59 13 3	0 6 2	0 8 10
Dorset	3	—	1	49	39	2	34	16 6 0	7 19 0	0 8 8	0 4 2
Durham	—	—	16	146	22	21	73	29 1 6	31 11 6	0 7 11	0 8 7
Essex	—	—	2	24	32	3	33	9 3 6	13 19 0	0 5 6	0 8 5
Gloucester	—	—	—	107	—	6	23	7 11 6	10 5 0	0 6 7	0 9 3
Hants	390	131	15	25	106	7	22	7 19 6	8 17 0	0 7 3	0 8 0
Hereford	—	—	—	—	—	—	—	—	—	—	—
Herts	18	—	—	11	15	—	19	9 2 0	4 18 0	0 9 7	0 5 2
Huntingdon	—	—	—	—	—	—	—	—	—	—	—
Kent	5,293	822	100	595	95	35	235	222 13 0	101 6 5	0 18 7	0 8 7
Lancaster	83,695	3,937	636	829	316	32	572	544 15 10	242 16 4	0 18 7	0 9 0
Leicester	275	—	15	77	214	9	57	50 13 0	31 1 6	0 17 9	0 10 4
Lincoln	59	6	24	106	52	7	70	22 19 9	35 1 0	0 8 2	0 15 3
Middlesex	766	565	148	1,160	1,321	45	1,199	998 2 0	70 12 6	1 0 0	0 1 5
Monmouth	—	—	—	57	—	—	2	2 0 0	1 0 0	1 0 0	0 10 0
Norfolk	3,312	209	373	187	137	15	77	58 4 4	63 12 5	1 4 9	1 9 6
Northampton	71	222	15	388	246	2	186	71 7 3	101 15 9	0 7 8	0 10 11
Northumberland	—	—	6	32	13	—	30	11 7 0	5 7 2	0 7 6	0 3 6
Nottingham	—	—	1	107	12	3	42	38 11 9	22 2 3	0 18 4	0 10 6
Oxford	—	—	—	20	129	—	50	14 2 0	7 14 10	0 5 7	0 3 1
Rutland	—	—	—	13	—	—	9	2 5 0	4 13 6	0 5 0	0 10 4
Salop	398	22	44	147	308	66	223	165 8 8	87 5 8	0 14 10	0 7 9
Somerset	4,775	—	—	139	120	8	94	46 0 6	28 10 10	0 9 11	0 6 0
Stafford	40	10	15	863	7	2	273	172 19 7	100 11 6	0 9 0	0 7 4
Suffolk	120	16	7	38	3	3	23	17 7 6	9 9 6	0 15 9	0 9 7
Surrey	1,444	918	450	1,552	1,463	413	1,051	1,505 13 0	73 17 6	1 8 5	0 1 4
Sussex	3,277	167	67	58	13	3	31	27 9 3	19 7 7	0 16 10	0 12 1
Warwick	16,866	828	92	252	193	19	90	26 3 0	42 19 6	0 5 9	0 9 6
Westmoreland	1,754	56	—	—	—	—	—	—	—	—	—
Wilts	4,034	54	22	47	6	—	7	11 13 0	2 18 0	1 13 3	0 8 3
Worcester	—	—	26	179	77	7	104	22 17 8	42 13 0	0 4 9	0 9 0
York	31,423	3,776	800	808	327	15	199	127 2 3	80 0 7	0 11 6	0 7 4
Total for England	191,048	13,162	3,752	8,413	5,507	774	5,409	4,484 4 4	1,509 17 7	—	—

App. III.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

Counties.	Number requiring Adjustment, but not seized.			Number seized.			No. of Convictions.	Amount of Penalties.	Amount of Costs.	Average Amount in each County for a single Conviction.	
	Weights.	Measures.	Balances,&c.	Weights.	Measures.	Balances,&c.				Amount of Penalty.	Amount of Cost.
WALES.											
								£ s. d.	£ s. d.	£ s. d.	£ s. d.
Anglesea	—	—	—	—	—	—	—	—	—	—	—
Brecon	—	—	—	25	5	1	31	13 17 6	0 14 0	0 8 11	0 0 5
Carmarthen	25	—	4	—	—	—	1	0 1 0	0 4 0	0 1 0	0 4 0
Cardigan	—	—	—	—	—	—	—	—	—	—	—
Carnarvon	—	—	—	—	—	—	2	3 0 0	1 0 0	1 10 0	0 10 0
Denbigh	4,732	111	6	109	44	—	45	15 3 5	15 13 0	0 6 8	0 6 11
Flint	—	—	—	31	20	—	37	10 11 6	14 17 0	0 5 8	0 8 0
Glamorgan	—	—	—	—	—	—	—	—	—	—	—
Merioneth	—	—	—	—	—	—	—	—	—	—	—
Montgomery	—	—	—	75	50	—	47	14 3 0	16 3 0	0 6 8	0 6 10
Pembroke	—	—	—	—	—	—	—	—	—	—	—
Radnor	—	—	—	—	—	—	—	—	—	—	—
Total for Wales	4,757	111	10	240	119	1	163	56 16 5	48 11 0	—	—
SCOTLAND.											
Aberdeen	—	—	—	89	—	2	6	2 5 0	3 9 0	0 7 6	0 11 6
Argyll	—	—	—	16	—	—	2	0 10 0	—	0 5 0	—
Ayr	—	—	—	194	—	—	58	11 12 6	47 0 7	0 4 0	0 16 2
Banff	—	—	—	—	—	—	—	—	—	—	—
Berwick	637	41	14	—	—	—	—	—	—	—	—
Bute	—	—	—	—	—	—	—	—	—	—	—
Caithness	—	—	—	2	—	—	2	0 7 6	1 2 0	0 3 9	0 11 0
Clackmannan	—	—	—	—	—	—	—	—	—	—	—
Cromarty	—	—	—	—	—	—	—	—	—	—	—
Dumbarton	—	—	—	213	—	—	—	—	—	—	—
Dumfries	—	—	—	—	—	—	—	—	—	—	—
Edinburgh	—	—	59	1,679	27	224	275	75 7 6	7 0 0	0 5 5	0 0 6
Elgin	—	—	—	—	—	—	—	—	—	—	—
Fife	—	—	—	—	—	—	5	13 11 6	—	—	—
Forfar	551	40	—	37	2	—	—	—	—	—	—
Haddington	—	—	—	—	—	—	—	—	—	—	—
Inverness	—	—	—	—	—	—	—	—	—	—	—
Kircudbright	—	—	—	—	—	—	—	—	—	—	—
Kincardine	—	—	—	—	—	—	—	—	—	—	—
Kinross	—	—	—	—	—	—	—	—	—	—	—
Lanark	1,235	—	—	255	—	1	126	64 18 0	—	0 10 2	—
Linlithgow	—	—	—	—	—	—	—	—	—	—	—
Nairn	—	—	—	—	—	—	—	—	—	—	—
Orkney	—	—	—	—	—	—	—	—	—	—	—
Peebles	—	—	—	—	—	—	—	—	—	—	—
Perth	1,097	364	100	—	—	—	—	—	—	—	—
Renfrew	4,005	248	—	33	1	—	10	3 11 6	2 2 6	0 7 1	0 4 3
Ross	1,219	2	—	70	—	—	—	—	—	—	—
Roxburgh	147	—	3	151	—	—	38	17 8 6	19 6 6	0 9 2	0 10 2
Selkirk	—	—	—	—	—	—	—	—	—	—	—
Stirling	—	—	—	—	—	—	—	—	—	—	—
Sutherland	—	—	—	—	—	—	—	—	—	—	—
Wigtown	—	—	—	—	—	—	—	—	—	—	—
Zetland	—	—	—	—	—	—	—	—	—	—	—
Total for Scotland	8,891	695	176	2,739	30	227	522	189 12 0	80 0 7	—	—
England	191,048	13,162	3,752	8,413	5,507	774	5,409	4,484 4 4	1,509 17 7		
Wales	4,757	111	10	240	119	1	163	56 16 5	48 11 0		
Scotland	8,891	695	176	2,739	30	227	522	189 12 0	80 0 7		
Total for Great Britain	204,696	13,968	3,938	11,392	5,666	1,002	6,094	4,730 12 9	1,638 9 2		
„ Ireland	—	—	—	6,780	1,588	625	—	—	—		
„ United Kingdom	—	—	—	18,172	7,254	1,627	—	—	—		
Isle of Jersey	—	—	—	25	—	—	—	—	—		
Isle of Man	1,031	56	—	157	62	22	56	8 18 11	52 4 8		

Standards Department, Board of Trade,
November 18, 1868.

H. W. Chisholm,
Warden of the Standards.

Appendix III.—*continued.*

ABSTRACT of RETURNS from the LOCAL INSPECTORS of WEIGHTS and

ABSTRACT D.—NUMBER of WEIGHTS and MEASURES STAMPED by

COUNTY. District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
BEDFORDSHIRE:—																													
4 Subdivisions of the County.	347	208	439	765	857	1,189	1,521	1,361	1,291	1,143	986	860	596	1	–	–	–	11,564	–	–	–	–	–	–	–	–	–	–	–
Bedford, Borough -	9	2	5	3	4	4	10	10	8	12	7	8	8	–	–	–	–	90	–	–	–	–	–	–	–	–	–	–	–
Luton, Manor -	No Standard weights in use.																												
Woburn, Manor -	Inspection transferred to County.																												
Total for County of Beds -	356	210	444	768	861	1,193	1,531	1,371	1,299	1,155	993	868	604	1	–	–	–	11,654	–	–	–	–	–	–	–	–	–	–	–
BERKSHIRE:—																													
7 Subdivisions of the County, viz.:—																													
Abingdon and Wallingford.	104	44	40	55	61	62	86	85	81	74	68	67	65	–	–	–	–	892	–	–	–	–	–	–	–	–	–	–	–
Farringdon - -	86	35	28	42	72	86	102	93	97	84	69	59	52	–	–	–	–	905	–	–	–	–	–	–	–	–	–	–	–
Maidenhead and Windsor.	–	3	3	3	12	12	18	20	19	17	19	22	16	–	–	–	–	164	–	–	–	–	–	–	–	–	–	–	–
Newbury - -	25	22	30	35	43	63	70	62	57	58	52	50	29	–	–	–	–	596	–	–	–	–	–	–	–	–	–	–	–
Reading - - -	22	6	17	16	23	29	32	31	34	29	28	25	31	–	–	–	–	323	–	–	–	–	–	–	–	–	–	–	–
Wantage - -	115	62	92	109	154	189	211	195	186	169	152	115	89	–	–	–	–	1,838	–	–	–	–	–	–	–	–	–	–	–
Wokingham - -	84	35	40	43	70	79	85	85	83	74	71	60	48	–	–	–	–	852	–	–	–	–	–	–	–	–	–	–	–
Abingdon, Borough -	118	39	38	39	36	43	59	48	42	43	43	41	41	–	–	–	–	630	–	–	–	–	–	–	–	–	–	–	–
Maidenhead, Borough	No record kept.																												
Newbury, Borough -	No return made.																												
Reading, Borough -	"																												
Wallingford, Borough	Inspection transferred to the County.																												
Windsor, Borough -	15	9	14	11	15	20	24	16	22	25	21	20	17	–	–	–	–	229	–	–	–	–	–	–	–	–	–	–	–
Wokingham, Borough	Inspection transferred to County.																												
Farringdon, Manor -	No return made.																												
Total for County of Berks -	569	255	302	353	486	583	687	635	821	573	523	459	383	–	–	–	–	6,429	–	–	–	–	–	–	–	–	–	–	–
BUCKS:—																													
6 Subdivisions of the County.	606	311	369	582	868	1,023	1,200	1,210	1,056	977	752	537	349	–	–	–	–	9,840	–	–	–	–	–	–	–	–	–	–	–
Buckingham, Borough	The manner in which the Inspector keeps his books renders it impossible to answer these questions.																												
Wycombe, Borough -	Not stated.																												
Winslow, Manor -	Inspection transferred to County.																												
Total for County of Bucks -	606	311	369	582	868	1,023	1,200	1,210	1,056	977	752	537	349	–	–	–	–	9,840	–	–	–	–	–	–	–	–	–	–	–
CAMBRIDGE:—																													
4 Subdivisions of the County.	121	56	135	139	173	249	384	366	340	285	272	233	198	–	–	–	–	2,951	–	–	–	–	–	–	–	–	–	–	–
Cambridge, Borough	No return made.																												
Wisbech, Borough -	516	182	219	260	274	259	411	340	291	245	198	145	120	–	–	–	–	3,460	–	–	–	–	–	–	–	–	–	–	–
Total for County of Cambridge -	637	238	354	399	447	508	795	706	631	530	470	378	318	–	–	–	–	6,411	–	–	–	–	–	–	–	–	–	–	–
CHESHIRE:—																													
9 Subdivisions of the County, viz.:—																													
Bricklow - -	433	202	328	516	625	419	617	593	604	407	621	834	521	–	–	–	–	6,720	–	–	–	–	–	–	–	–	–	–	–
Broxton - -	172	114	192	232	252	260	332	316	166	200	205	181	131	–	–	–	–	2,753	–	–	–	–	–	–	–	–	–	–	–
Eddisbury - -	357	189	395	477	609	604	777	637	531	430	395	353	253	–	–	–	–	6,007	–	–	–	–	–	–	–	–	–	–	–
Hyde - - -	337	241	340	723	1,137	1,060	1,350	1,123	1,004	914	794	760	519	–	–	–	–	10,302	–	–	–	–	–	–	–	–	–	–	–
Macclesfield - -	237	100	230	329	379	397	476	403	364	291	260	259	158	–	–	–	–	3,883	–	–	–	–	–	–	–	–	–	–	–
Nantwich - -	416	270	503	800	963	972	1,231	1,023	957	743	664	651	429	–	–	–	–	9,624	–	–	–	–	–	–	–	–	–	–	–
Northwich - -	428	220	537	789	828	961	1,120	907	845	656	626	504	325	–	–	–	–	8,746	–	–	–	–	–	–	–	–	–	–	–
Stockport - -	237	111	303	423	501	555	693	572	496	434	385	344	224	–	–	–	–	5,278	–	–	–	–	–	–	–	–	–	–	–
Wirral - - -	403	124	217	392	415	457	628	510	474	370	314	250	150	–	–	–	–	4,704	–	–	–	–	–	–	–	–	–	–	–
Birkenhead, Town -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	600	600	–	–	–	–	–	–	–	–	–	–	–
Chester, City and Borough.	285	94	123	175	210	254	343	257	230	171	154	123	89	–	–	–	–	2,508	–	–	–	–	–	–	–	–	–	–	–
Congleton, Borough -	20	32	80	85	120	132	136	128	120	124	120	115	112	–	–	–	–	1,324	–	–	–	–	–	–	–	–	–	–	–
Macclesfield, Borough	No return made.																												
Stockport, Borough -	250	107	140	194	370	450	580	534	446	360	316	285	182	–	1	–	–	4,215†	–	–	–	–	–	–	–	–	–	–	–
Total for County of Chester -	3,575	1,804	3,388	5,135	6,409	6,521	8,283	7,003	6,239	5,100	4,854	4,659	3,093	–	1	–	600	66,664	–	–	–	–	–	–	–	–	–	–	–

* The following measures of other denominations than those mentioned in the above Abstract have also been

† The following weights of other denominations than those mentioned in the above Abstract have also been stamped in the Borough of Stockport, viz., 10 20-lbs., 19 12-lbs. verified in

Appendix III.—*continued.*

MEASURES in GREAT BRITAIN, for the Year ended December 31, 1866—*cont.*

INSPECTORS distinguishing the several DENOMINATIONS.

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	½ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
–	–	–	–	–	–	–	–	–	–	446	547	568	244	205	–	2,010	15	1	21	22	31	16	–	–	–	–	106	25	–	–	–	BEDFORDSHIRE:— 4 Subdivisions of the County.
–	–	–	–	–	–	–	–	–	–	2	5	5	2	1	–	15	2	–	1	5	5	4	–	–	–	–	17	6	–	–	–	Bedford, Borough.
No Standard measures in use.																															Luton, Manor.
Inspection transferred to County.																															Woburn, Manor.
–	–	–	–	–	–	–	–	–	–	448	552	573	246	206	–	2,025	17	1	22	27	36	20	–	–	–	–	123	31	–	–	–	Total for County of Beds.
–	–	–	–	–	–	–	–	–	–	21	17	20	7	6	–	71	5	–	–	2	3	1	–	–	–	–	11*	–	–	–	–	BERKSHIRE:— 7 Subdivisions of the County, viz.:— Abingdon and Wallingford.
–	–	–	–	–	–	–	–	–	–	40	52	54	26	13	–	185	2	2	4	3	3	1	–	–	–	–	15	–	–	–	–	Farringdon.
–	–	–	–	–	–	–	–	–	–	1	14	8	2	1	–	26	–	1	1	2	2	1	–	–	–	–	7	–	–	–	–	Maidenhead and Windsor.
–	–	–	–	–	–	–	–	–	–	12	13	14	1	–	–	40	69	7	24	543	520	180	–	–	–	–	1,348	–	–	–	–	Newbury.
–	–	–	–	–	–	–	–	–	–	9	9	10	4	3	–	35	6	1	2	1	–	–	–	–	–	–	10	5	–	–	–	Reading.
–	–	–	–	–	–	–	–	–	3	11	11	21	6	2	–	54	–	–	1	1	1	–	–	–	–	–	3	–	–	–	–	Wantage.
–	–	–	–	–	–	–	–	–	–	22	31	30	21	22	–	126	2	3	4	2	3	–	–	–	–	–	14	–	–	–	–	Wokingham.
–	–	–	–	–	–	–	–	–	–	7	8	8	7	7	–	37	2	–	–	–	–	–	–	–	–	–	2	–	–	–	–	Abingdon, Borough.
No record kept.																															Maidenhead, Borough.
No return made.																															Newbury, Borough.
No return made.																															Reading, Borough.
Inspection transferred to the County.																															Wallingford, Borough.
–	–	–	–	–	–	–	–	–	–	672	511	169	36	35	–	1,423	–	–	–	–	2	3	–	–	–	–	–	–	–	–	–	Windsor, Borough.
Inspection transferred to County.																															Wokingham, Borough.
No return made.																															Farringdon, Manor.
–	–	–	–	–	–	–	–	3	–	795	666	334	110	89	–	1,997	86	14	36	554	532	183	–	–	–	–	1,405	5	–	–	–	Total for County of Berks.
–	–	–	–	–	–	–	–	–	4	127	322	155	69	46	–	723	29	4	32	55	63	8	–	–	–	–	191	13	–	–	–	BUCKS:— 6 Subdivisions of the County.
The manner in which the Inspector keeps his books renders it impossible to answer these questions.																															Buckingham, Borough.
Not stated.																															Wycombe, Borough.
Inspection transferred to County.																															Winslow, Manor.
–	–	–	–	–	–	–	–	–	4	127	322	155	69	46	–	723	29	4	32	55	63	8	–	–	–	–	191	13	–	–	–	Total for County of Bucks.
–	–	–	–	–	–	–	–	–	–	48	62	59	20	18	–	207	12	1	6	7	9	3	–	–	–	–	38	–	–	–	–	CAMBRIDGE:— 4 Subdivisions of the County.
No return made.																															Cambridge, Borough.
–	–	–	–	–	–	–	10	18	7	87	492	319	66	58	–	1,057	16	1	20	33	92	40	–	–	–	–	202	67	–	–	–	Wisbech, Borough.
–	–	–	–	–	–	–	10	18	7	135	554	378	86	76	–	1,264	28	2	26	40	101	43	–	–	–	–	240	67	–	–	–	Total for County of Cambridge.
–	–	–	–	–	–	–	–	–	1	6	312	73	7	–	–	399	–	–	–	–	–	–	–	–	–	–	–	–	–	–	CHESHIRE:— 9 Subdivisions of the County, viz.:— Bricklow.
–	–	–	–	–	–	–	–	–	1	49	84	84	66	–	–	284	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	Broxton.
–	–	–	–	–	–	–	–	–	6	123	138	104	37	38	–	446	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Eddisburg.
–	–	–	–	–	–	–	–	–	–	106	135	138	41	2	–	422	–	–	3	4	7	–	–	–	–	–	14	3	–	–	–	Hyde.
–	–	–	–	–	–	–	–	3	2	45	66	57	16	17	–	206	–	–	1	1	–	–	–	–	–	–	2	11	–	–	–	Macclesfield.
–	–	–	–	–	–	2	4	5	4	149	205	207	52	41	–	669	–	–	–	–	45	3	–	–	–	–	48	9	–	–	–	Nantwich.
–	–	–	–	–	–	–	–	2	4	217	231	234	74	73	–	835	–	–	–	–	46	2	–	–	–	–	48	22	–	–	–	Northwich.
–	–	–	–	–	–	–	–	–	–	16	31	31	7	3	–	88	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Stockport.
–	–	–	–	–	–	–	–	1	–	57	79	76	23	–	–	236	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Wirral.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Birkenhead, Town.
–	–	–	–	–	–	–	–	1	1	32	105	164	18	13	–	234	–	–	2	5	5	–	–	–	–	–	12	88	–	–	–	Chester, City and Borough.
–	–	–	–	–	–	–	–	1	1	23	25	23	–	–	–	73	2	–	–	–	–	–	–	–	–	–	2	6	–	–	–	Congleton, Borough.
No return made.																															Macclesfield, Borough.
–	–	–	–	–	–	1	6	5	1	157	254	128	15	19	–	586	–	–	2	19	13	6	–	–	–	–	40	14	–	–	–	Stockport, Borough.
–	–	–	–	–	–	3	10	18	21	980	1,665	1,219	356	206	–	4,478	2	–	8	29	116	11	–	–	–	–	166	161	–	–	–	Total for County of Chester.

stamped in the County of Berks, viz., one 5-gallon, one 3-gallon, for which there are no specific legal Standards.

39 10-lbs., 14 6-lbs., all avoirdupois. For the weights of 20, 12, and 6 lbs. avoirdupois there are no specific legal Standards. For the weights of 10-lbs. no Standard has been this Department.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. / District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy.									
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total. Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
CORNWALL:—																													
6 Subdivisions of the County.	2,497	1,328	2,005	3,048	2,964	3,307	4,306	3,548	2,812	2,421	2,359	2,133	1,886	–	–	–	–	34,614	–	–	–	–	–	–	–	–	–	–	–
Bodmin, Borough	The book containing these particulars mislaid.																												
Falmouth, Borough	10	20	20	30	18	36	40	42	50	50	50	50	50	–	–	–	–	466	–	–	–	–	–	–	–	–	–	–	–
Helston, Borough	–	–	–	–	–	–	21	15	7	7	7	7	7	–	–	–	–	71	–	–	–	–	–	–	–	–	–	–	–
Launceston, Borough	No return made.																												
Liskeard, Borough	33	42	51	60	64	70	71	74	74	60	72	73	74	1	–	–	–	819	–	–	–	–	–	–	–	–	–	–	–
Penryn, Borough	179	50	55	75	73	67	72	75	64	55	50	49	53	–	–	–	–	917	–	–	–	–	–	–	–	–	–	–	–
Penzance, Borough	8	5	16	11	17	21	49	27	21	18	19	17	16	–	–	–	–	245	–	–	–	–	–	–	–	–	–	–	–
St. Germans, Boro'	Inspection transferred to County.																												
St. Ives, Borough	Not stated.																												
Truro, Borough	No account kept.																												
Total for County of Cornwall	2,727	1,445	2,147	3,224	3,136	3,501	4,559	3,781	3,028	2,611	2,557	2,329	2,086	1	–	–	–	37,132	–	–	–	–	–	–	–	–	–	–	–
CUMBERLAND:—																													
6 Subdivisions of the County.	1,118	420	966	1,552	500	1,017	1,646	1,383	1,169	995	973	885	679	–	–	–	–	13,303	–	–	–	–	–	–	–	–	–	–	–
Carlisle, City	316	126	129	237	106	157	204	176	151	118	90	80	89	–	–	–	–	1,979	–	–	–	–	–	–	–	–	–	–	–
Workington, Town	21	5	9	16	7	13	15	12	8	8	4	6	3	–	–	–	–	127	–	–	–	–	–	–	–	–	–	–	–
Total for County of Cumberland	1,455	551	1,104	1,805	613	1,187	1,865	1,571	1,328	1,121	1,067	971	771	–	–	–	–	15,409	–	–	–	–	–	–	–	–	–	–	–
DERBY:—																													
12 Subdivisions of the County, viz.:—																													
Alfreton	17	2	4	6	1	3	7	17	20	23	22	28	22	–	–	–	–	172	–	–	–	–	–	–	–	–	–	–	–
Ashbourn	3	4	9	9	21	22	22	52	34	15	48	29	36	–	–	–	–	304	–	–	–	–	–	–	–	–	–	–	–
Bakewell	2	1	5	22	35	34	59	58	53	47	62	59	43	4	1	–	–	485	–	–	–	–	–	–	–	–	–	–	–
Belper	–	1	6	22	28	26	48	47	46	47	43	34	31	5	–	–	–	384	–	–	–	–	–	–	–	–	–	–	–
Chapel-en-le-Frith	54	35	32	36	36	48	49	44	42	58	40	34	23	–	–	–	–	531	–	–	–	–	–	–	–	–	–	–	–
Chesterfield, including the Borough.	33	29	38	39	40	42	54	53	52	49	50	48	48	–	–	–	–	575	–	–	–	–	–	–	–	–	–	–	–
Derby	18	4	9	13	18	24	19	18	12	9	9	3	–	–	1	–	–	157	–	–	–	–	–	–	–	–	–	–	–
Eckington	–	–	8	13	10	13	16	19	14	12	10	12	8	–	–	–	–	135	–	–	–	–	–	–	–	–	–	–	–
Glossop, including the Borough.	1	15	15	15	15	29	15	15	15	15	15	15	18	–	–	–	–	198	–	–	–	–	–	–	–	–	–	–	–
Repton and Gresley	–	–	–	–	–	3	11	5	5	4	5	5	1	–	–	–	–	39	–	–	–	–	–	–	–	–	–	–	–
Smalley	4	–	3	9	2	6	36	25	31	9	35	42	18	1	1	1	–	223	–	–	–	–	–	–	–	–	–	–	–
Wirksworth	–	–	11	9	6	7	34	29	34	42	49	–	–	–	–	–	–	221	–	–	–	–	–	–	–	–	–	–	–
Chesterfield, Borough	Inspection transferred to County.																												
Derby, Borough	No return made.																												
Glossop, Borough	Inspection transferred to County.																												
Total for County of Derby	132	91	140	193	212	257	370	382	358	330	388	309	248	10	3	1	–	3,424	–	–	–	–	–	–	–	–	–	–	–
DEVON:—																													
12 Subdivisions of the County, viz.:—																													
Barnstaple	23	75	71	171	164	294	214	176	92	47	207	44	–	–	–	–	–	1,578	–	–	–	–	–	–	–	–	–	–	–
Bideford and Torrington.	144	130	97	150	200	130	200	210	214	140	200	–	–	–	–	–	–	1,815	–	–	–	–	–	–	–	–	–	–	–
Castle	34	14	14	10	20	30	99	79	79	38	89	88	88	–	–	–	–	732	–	–	–	–	–	–	–	–	–	–	–
Collumpton	160	246	301	348	408	404	446	448	414	414	414	414	414	–	–	–	–	4,831	–	–	–	–	–	–	–	–	–	–	–
Honiton	98	102	110	100	230	250	380	200	156	104	96	73	65	–	–	–	–	1,964	–	–	–	–	–	–	–	–	–	–	–
Okehampton	43	32	30	29	32	38	64	58	29	14	22	16	5	–	–	–	–	412	–	–	–	–	–	–	–	–	–	–	–
Paignton	270	160	200	–	–	–	–	–	–	–	–	–	–	–	–	–	3,653	4,283	–	–	–	–	–	–	–	–	–	–	–
Stanborough and Coleridge.	12	15	36	8	8	8	12	12	12	12	12	12	12	–	–	–	–	171	–	–	–	–	–	–	–	–	–	–	–
East Stonehouse.	156	78	83	–	–	–	–	–	–	–	–	–	–	–	–	–	1,799	2,116	–	–	–	–	–	–	–	–	–	–	–
Tavistock	9	12	14	–	–	–	–	–	–	–	–	–	–	–	–	–	360	395	–	–	–	–	–	–	–	–	–	–	–
Teignbridge	No record kept.																												
Tiverton	93	69	91	–	–	–	–	–	–	–	–	–	–	–	–	–	1,257	1,510	–	–	–	–	–	–	–	–	–	–	–
Barnstaple, Borough	No return made.																												
Bideford, Town	No return made.																												
Bradninch, Borough	15	15	17	20	26	32	61	59	60	60	60	60	60	–	–	–	–	545	–	–	–	–	–	–	–	–	–	–	–
Dartmouth, Borough	No return made.																												
Devonport, Borough	64	32	43	81	76	107	151	129	117	99	79	67	55	–	–	–	–	1,100	–	–	–	–	–	–	–	–	–	–	–
Exeter, City and County.	No return made.																												
Exmouth, Town	No return made.																												
Gt. Torrington, Town	No Standard weights in use.																												
Holsworthy, Town and Manor of.	8	5	5	3	4	5	13	12	4	3	6	4	–	–	–	–	–	72	–	–	–	–	–	–	–	–	–	–	–
Honiton, Borough	Inspection transferred to County.																												
Ilfracombe, Borough	Inspection transferred to County.																												
Molton, South, Boro'	14	6	9	10	12	14	27	24	14	9	6	4	4	–	–	–	–	153	–	–	–	–	–	–	–	–	–	–	–
Okehampton, Boro'	Transferred to County.																												
Plymouth, Borough	354	162	773	–	–	–	–	–	–	–	–	–	–	–	–	–	1,528	2,817	–	–	–	–	–	–	–	–	–	–	–
Stoke Damerel, Parish	No return made. See Devonport, Borough.																												
Stonehouse, East, Parish.	No return made.																												
Tiverton, Borough	35	40	61	–	–	–	–	–	–	–	–	–	–	–	–	–	482	618	–	–	–	–	–	–	–	–	–	–	–
Totnes, Borough	No account kept.																												
St. Sidwell, Manor	Transferred to the Ecclesiastical Commission in 1862, when the inspection under Courts Leet was discontinued.																												
Tavistock, Manor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total for County of Devon	1,532	1,193	1,955	930	1,180	1,312	1,667	1,407	1,191	990	1,191	782	703	–	–	–	9,079	25,112	–	–	–	–	–	–	–	–	–	–	–
DORSET:—																													
9 Subdivisions of the County.	763	724	502	760	1,042	1,334	1,640	1,182	807	563	545	286	182	–	–	–	–	10,330	–	–	–	–	–	–	–	–	–	–	–
Bridport, Borough	Transferred to County.																												
Dorchester, Borough	20	11	6	13	21	20	22	22	14	14	6	7	4	–	–	–	–	180	–	–	–	–	–	–	–	–	–	–	–
Lyme Regis, Borough	16	11	13	23	32	48	49	51	46	37	25	26	15	–	–	–	–	392	–	–	–	–	–	–	–	–	–	–	–
Poole, Town & County	23	13	7	10	19	24	29	29	29	29	29	29	29	–	–	–	–	299	–	–	–	–	–	–	–	–	–	–	–
Weymouth, Borough	No return made.																												
Gillingham, Liberty and Manor.	No return made.																												
Total for County of Dorset	822	759	528	806	1,114	1,426	1,740	1,284	896	643	605	348	230	–	–	–	–	11,201	–	–	–	–	–	–	–	–	–	–	–

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	¼ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	½ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
–	–	–	–	–	–	–	1	15	36	425	792	521	352	260	–	2,402	9	53	10	21	19	–	–	–	–	–	112	101	–	–	–	CORNWALL:— 6 Subdivisions of the County.
–	–	–	–	–	–	–	–	4	2	4	4	3	5	2	–	24	1	12	1	10	6	–	–	–	–	–	30	1	–	–	–	Bodmin, Borough.
–	–	–	–	–	–	–	–	10	21	30	30	34	40	40	–	205	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	Falmouth, Borough.
–	–	–	–	–	–	–	1	1	–	12	20	13	–	–	–	52	–	–	1	1	–	–	–	–	–	–	2	–	–	–	–	Helston, Borough.
No return made.																															Launceston, Borough
–	–	–	–	–	–	–	–	3	3	27	42	47	17	17	–	156	–	–	13	17	–	–	–	–	–	–	30	12	–	–	–	Liskeard, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	–	–	6	–	–	–	–	10	–	–	–	–	Penryn, Borough.
–	–	–	–	–	–	–	–	–	–	16	15	15	2	1	–	49	–	1	–	1	1	–	–	–	–	–	3	–	–	–	–	Penzance, Borough.
Inspection transferred to County.																															St. Germans, Borough
Not stated.																															St. Ives, Borough.
No account kept.																															Truro, Borough.
–	–	–	–	–	–	–	2	33	62	514	903	638	416	320	–	2,888	10	66	29	50	26	6	–	–	–	–	187	121	–	–	–	Total for County of Cornwall.
–	–	–	–	–	–	2	12	28	45	237	435	262	148	117	–	1,286	–	1	3	–	–	–	–	–	–	–	4	36	–	–	–	CUMBERLAND:— 6 Subdivisions of the County.
–	–	–	–	–	–	–	–	–	–	–	114	74	12	10	–	210	12	1	1	5	–	91	–	–	–	–	110	12	–	–	–	Carlisle, City.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Workington, Town.
–	–	–	–	–	–	2	12	28	45	237	549	336	160	127	–	1,496	12	2	4	5	–	91	–	–	–	–	114	48	–	–	–	Total for County of Cumberland.
–	–	–	–	–	–	–	–	–	–	8	26	6	2	–	–	42	–	–	–	–	–	–	–	–	–	–	–	44	–	–	–	DERBY:— 12 Subdivisions of the County.
–	–	–	–	–	–	–	–	–	–	4	4	10	3	6	–	27	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Alfreton.
–	–	–	–	–	–	–	–	–	–	18	19	22	17	9	–	85	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ashbourn.
–	–	–	–	–	–	–	–	–	–	7	10	4	4	5	–	30	–	–	1	1	1	6	9	–	–	–	18	–	–	–	–	Bakewell.
–	–	–	–	–	–	–	–	–	–	17	17	15	12	10	–	71	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	Belper.
–	–	–	–	–	–	5	5	5	10	18	18	18	7	7	–	93	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Chapel-en-le-Frith.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Chesterfield, including the Boro'.
–	–	–	–	–	–	–	–	1	–	2	4	–	–	–	–	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Derby.
–	–	–	–	–	–	–	–	–	–	6	6	6	2	–	–	20	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Eckington.
–	–	–	–	–	–	–	–	–	8	8	9	8	8	8	–	49	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Glossop, including the Borough.
–	–	–	–	–	–	–	–	–	–	10	10	10	–	–	–	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Repton and Gresley.
–	–	–	–	–	–	–	–	–	–	3	28	7	1	–	–	39	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Smalley.
–	–	–	–	–	–	–	–	–	–	20	5	5	3	–	–	33	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	Wirksworth.
Inspection transferred to County.																															Chesterfield, Boro'.
No return made.																															Derby, Borough.
Inspection transferred to County.																															Glossop, Borough.
–	–	–	–	–	–	5	5	6	18	121	156	111	59	45	–	526	–	–	1	1	1	6	9	–	–	–	18	68	–	–	–	Total for County of Derby.
–	–	–	–	–	–	–	–	3	8	27	22	28	14	21	–	123	8	24	21	18	7	–	–	–	–	–	78	4	–	–	–	DEVON:— 12 Subdivisions of the County.
–	–	–	–	–	–	–	–	–	10	20	50	70	20	12	–	182	–	31	50	20	–	–	–	–	–	–	101	40	–	–	–	Barnstaple.
–	–	–	–	–	–	–	–	–	–	12	30	48	10	15	–	115	1	2	8	12	10	5	–	–	–	–	38	–	–	–	–	Bideford and Torrington.
–	–	–	–	–	–	–	1	14	4	96	80	84	84	76	–	439	–	4	48	10	–	–	–	–	–	–	62	16	–	–	–	Castle.
–	–	–	–	–	–	–	–	–	–	14	14	25	12	3	–	68	–	–	19	9	6	1	–	–	–	–	35	72	–	–	–	Collumpton.
–	–	–	–	–	–	–	–	–	–	5	7	6	4	2	–	24	–	1	1	–	–	–	–	–	–	–	2	2	–	–	–	Honiton.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	188	188	–	8	2	–	–	–	–	–	–	–	10	1	–	–	–	Okehampton.
–	–	–	–	–	–	6	–	–	–	4	4	2	3	–	–	19	–	–	–	–	–	–	–	–	–	–	–	14	–	–	–	Paignton.
–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	193	195	–	–	2	–	–	–	–	–	–	–	2	–	–	–	–	Stanborough and Coleridge.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	126	126	–	–	2	–	–	–	–	–	–	–	2	–	–	–	–	East Stonehouse.
No record kept.																															Tavistock.
–	–	–	–	–	–	–	–	–	–	14	14	14	13	13	–	68	1	15	–	–	–	–	–	–	–	–	16	–	–	–	–	Teignbridge.
No return made.																															Tiverton.
No return made.																															Barnstaple, Borough.
–	–	–	–	–	–	–	–	–	–	7	6	5	3	2	–	23	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	Bideford, Town.
No return made.																															Bradninch, Borough.
–	–	–	–	–	–	–	–	–	–	37	64	53	10	2	–	169	–	–	1	–	–	–	–	–	–	–	1	–	–	–	Dartmouth, Borough.
No return made.																															Devonport, Borough.
No return made.																															Exeter, City and County.
No Standard measures in use.																															Exmouth, Town.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Gt. Torrington, Town.
Inspection transferred to County.																															Holsworthy, Town and Manor of.
Inspection transferred to County.																															Honiton, Borough.
–	–	–	–	–	–	–	–	–	–	1	1	2	–	–	–	4	–	–	14	8	–	–	–	–	–	–	22	–	–	–	–	Ilfracombe, Borough.
Inspection transferred to County.																															Molton, South, Boro'.
–	–	–	–	–	–	4	3	12	8	–	–	–	–	–	–	187	214	2	5	6	–	–	–	–	–	–	13	1	–	–	–	Okehampton, Boro'.
No return made. See Devonport return.																															Plymouth, Borough.
No return made.																															Stoke Damerel, Parish.
–	–	–	–	–	–	–	–	–	–	12	11	21	1	–	–	45	–	–	6	4	3	13	–	–	–	–	26	2	–	–	–	Stonehouse, East Parish.
No account kept.																															Tiverton, Borough.
Inspection transferred to Ecclesiastical Commission in 1862, when the inspection under the Courts Leet was discontinued.																															Totnes, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	St. Sidwell, Manor.
–	–	–	–	–	–	10	5	32	31	249	303	358	174	146	–	694	2,002	12	90	180	81	26	19	–	–	–	408	159	–	–	–	Tavistock, Manor.
–	–	–	–	–	–	4	3	13	11	49	71	68	34	19	–	272	13	6	10	80	64	10	–	–	–	–	183	14	–	–	–	Total for County of Devon.
Transferred to County.																															DORSET:— 9 Subdivisions of the County.
Nil.																															Bridport, Borough.
No return made.																															Dorchester, Borough.
No return made.																															Lyme Regis, Boro'.
–	–	–	–	–	–	4	3	17	15	55	77	72	35	19	–	297	13	10	11	82	64	10	–	–	–	–	190	15	–	–	–	Poole, Town and Co.
																																Weymouth, Borough.
																																Gillingham, Liberty and Manor.
																																Total for County of Dorset.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. — District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights of the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
DURHAM:—																													
11 Subdivisions of the County, viz.:—																													
Barnard Castle -	11	3	12	15	13	13	23	16	16	15	13	18	19	–	–	–	–	187	–	–	–	–	–	–	–	–	–	–	–
Bishop Auckland -	12	9	17	30	20	22	170	166	162	163	157	187	196	–	–	–	–	1,311	–	–	–	–	–	–	–	–	–	–	–
Castle Eden - -	9	3	3	4	6	6	12	11	11	11	12	13	11	–	–	–	–	112	–	–	–	–	–	–	–	–	–	–	–
Chester - - -	29	6	15	18	18	17	51	47	43	37	38	44	43	–	–	–	–	406	–	–	–	–	–	–	–	–	–	–	–
Darlington - -	168	23	36	24	40	41	38	38	29	29	29	40	34	–	–	–	–	569	–	–	–	–	–	–	–	–	–	–	–
Durham - - -	–	5	5	7	7	6	5	5	5	7	5	7	7	–	–	–	–	71	–	–	–	–	–	–	–	–	–	–	–
Houghton-le-Spring.	2	–	6	2	1	4	32	35	25	26	31	31	39	–	–	–	–	234	–	–	–	–	–	–	–	–	–	–	–
Jarrow - - -	5	5	6	6	12	13	31	34	34	37	34	31	22	–	–	–	–	270	–	–	–	–	–	–	–	–	–	–	–
Lanchester - -	–	1	2	4	4	7	16	15	12	13	17	17	14	–	–	–	–	122	–	–	–	–	–	–	–	–	–	–	–
Stanhope - -	–	–	–	1	2	1	10	10	10	8	10	10	13	–	–	–	–	75	–	–	–	–	–	–	–	–	–	–	–
West Hartlepool -	12	10	20	17	16	16	42	54	53	54	57	53	40	–	–	–	–	444	–	–	–	–	–	–	–	–	–	–	–
Gateshead, Borough -	94	38	50	55	49	58	72	65	56	46	37	29	20	5	5	3	–	682	1	1	1	1	1	1	1	1	1	1	1
Stockton-on-Tees, Borough.	No record kept.																												
South Shields, Boro' -	972	444	443	515	399	497	567	539	501	381	357	312	386	–	–	–	–	6,313	–	–	–	–	–	–	–	–	–	–	–
Sunderland, Borough	2,109	454	945	1,126	674	1,234	1,755	1,703	1,451	1,192	971	911	692	1	1	–	–	15,219	–	–	–	–	–	–	–	–	–	–	–
Total for County of Durham -	3,423	1,001	1,560	1,824	1,261	1,935	2,824	2,738	2,408	2,019	1,768	1,703	1,536	6	6	3	–	26,015	1	1	1	1	1	1	1	1	1	1	1
ESSEX:—																													
15 Subdivisions of the County, viz.:—																													
1. Brentwood -	374	138	280	445	536	588	670	628	575	493	431	298	188	1	–	–	–	5,645	–	–	–	–	–	–	–	–	–	–	–
2. (District No. 2)	141	97	143	181	199	161	255	195	181	138	119	104	111	–	–	–	–	2,025	–	–	–	–	–	–	–	–	–	–	–
3. Colchester - -	22	59	58	62	75	85	85	78	72	65	54	45	36	–	–	–	–	796	–	–	–	–	–	–	–	–	–	–	–
4. Dengie - -	154	135	124	176	218	265	179	250	247	201	172	154	139	–	–	–	–	2,414	–	–	–	–	–	–	–	–	–	–	–
5. Great Dunmow	245	127	209	220	202	251	305	252	218	200	166	143	112	–	–	–	–	2,650	–	–	–	–	–	–	–	–	–	–	–
6. (District No. 6)	290	193	311	401	390	472	526	490	380	331	265	203	–	–	–	–	–	4,261	–	–	–	–	–	–	–	–	–	–	–
7. Freshwell - -	217	113	145	124	150	174	204	177	148	116	94	82	70	–	–	–	–	1,814	–	–	–	–	–	–	–	–	–	–	–
8. (District No. 8)	103	52	115	144	156	188	211	191	169	133	114	102	8	–	–	–	–	1,686	–	–	–	–	–	–	–	–	–	–	–
9. Hinckford - -	167	88	134	169	181	185	195	208	184	157	156	94	86	–	–	–	–	2,004	–	–	–	–	–	–	–	–	–	–	–
10. (District No. 10)	98	65	86	95	101	113	145	131	123	111	94	77	62	–	–	–	–	1,306	–	–	–	–	–	–	–	–	–	–	–
11. Rochford - -	225	130	183	262	270	313	323	302	238	221	207	132	129	–	–	–	–	2,935	–	–	–	–	–	–	–	–	–	–	–
12. Tendring - -	369	150	253	724	300	406	429	376	333	288	227	187	138	–	–	–	–	4,180	–	–	–	–	–	–	–	–	–	–	–
13. Walden - -	174	102	144	158	144	175	202	192	168	140	116	196	80	–	–	–	–	1,991	–	–	–	–	–	–	–	–	–	–	–
14. Witham - -	242	105	153	197	215	255	273	265	257	206	181	147	104	–	–	–	–	2,600	–	–	–	–	–	–	–	–	–	–	–
15. Orsett - -	170	77	125	228	243	253	276	275	260	209	174	139	90	–	–	–	–	2,519	–	–	–	–	–	–	–	–	–	–	–
Colchester, Borough -	497	190	226	313	340	349	356	–	–	–	–	–	–	–	–	–	1,402	3,673	–	–	–	–	–	–	–	–	–	–	–
Maldon, Borough -	No return made.																												
Harwich, Borough -	19	9	10	17	18	23	21	19	20	12	4	3	4	–	–	–	–	179	–	–	–	–	–	–	–	–	–	–	–
Havering-atte-Bower, Liberty of.	54	19	32	64	64	68	71	71	73	57	57	30	21	–	–	–	–	681	–	–	–	–	–	–	–	–	–	–	–
Saffron Walden, Boro'	151	52	67	68	72	93	98	84	73	65	50	41	28	–	–	–	–	942	–	–	–	–	–	–	–	–	–	–	–
Wetherfield, Manor -	No Standard weights in use.																												
Total for County of Essex - -	3,712	1,901	2,798	4,048	3,883	4,417	4,824	4,184	3,724	3,143	2,681	2,177	1,406	1	–	–	1,402	44,301	–	–	–	–	–	–	–	–	–	–	–
GLOUCESTERSHIRE:—																													
8 Subdivisions of the County, viz.:—																													
Bristol - - -	201	104	153	207	169	246	284	249	221	194	165	156	136	–	–	–	–	2,485*	–	–	–	–	–	–	–	–	–	–	–
Cheltenham - -	419	191	184	202	203	244	324	304	275	255	247	244	244	–	–	–	–	3,333	–	–	–	–	–	–	–	–	–	–	–
Cirencester - -	46	29	36	41	77	86	86	92	63	76	60	59	44	–	–	–	–	795	–	–	–	–	–	–	–	–	–	–	–
Dursley - - -	160	99	126	151	138	178	157	142	144	97	74	57	31	–	–	–	–	1,554	–	–	–	–	–	–	–	–	–	–	–
Forest - - -	113	66	95	113	127	144	179	160	151	122	101	88	83	–	–	–	–	1,542	–	–	–	–	–	–	–	–	–	–	–
Gloucester - -	87	41	32	48	25	24	35	24	19	11	12	8	6	–	–	–	–	372	–	–	–	–	–	–	–	–	–	–	–
Stroud - - -	190	86	100	115	129	163	207	183	181	146	128	123	119	–	–	–	–	1,870	–	–	–	–	–	–	–	–	–	–	–
Stow-in-the-Wold -	245	122	104	148	177	215	263	233	227	202	165	155	146	–	–	–	–	2,402	–	–	–	–	–	–	–	–	–	–	–
Cirencester, Town and Borough.	No return made.																												
Gloucester, City and County of a City and Borough.	628	154	129	114	91	88	94	39	37	29	26	15	5	–	–	–	–	1,449	–	–	–	–	–	–	–	–	–	–	–
Tewkesbury, Borough	27	10	17	17	25	27	40	26	25	24	20	20	23	–	–	–	–	301	–	–	–	–	–	–	–	–	–	–	–
Wootton-under-Edge, Town.	No return made.																												
Bisley, Manor -	Transferred to County.																												
Churchdown, Manor -																													
Cirencester, 7 Hundreds of.																													
Hempstede, Manor -																													
Presbury, Manor -																													
Stow-in-the-Wold, Manor.																													
Netherswell, Manor -																													
Total for County of Gloucester -	2,116	902	976	1,156	1,161	1,415	1,669	1,449	1,343	1,156	998	925	837	–	–	–	–	16,103	–	–	–	–	–	–	–	–	–	–	–
HANTS:—																													
14 Subdivisions of the County.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Andover, Borough -	Not stated.																												
Basingstoke, Town -	30	15	19	27	29	42	25	30	26	15	20	8	–	–	–	–	–	286	–	–	–	–	–	–	–	–	–	–	–
Newport, Isle of Wight, Borough.	Inspection transferred to County.																												
Portsmouth, Borough	32	16	19	–	–	–	–	–	–	–	–	–	–	–	–	–	436	503	–	–	–	–	–	–	–	–	–	–	–
Ryde, Isle of Wight, Town.	No return made.																												
Southampton, Boro' -	No return made.																												
Winchester, City	No return made.																												
Stockbridge, Borough and Manor.	No return made.																												
Total for County of Hants -	62	31	38	27	29	42	25	30	26	15	20	8	–	–	–	–	436	789	–	–	–	–	–	–	–	–	–	–	–
HEREFORDSHIRE:—																													
9 Subdivisions of the County.	526	395	670	748	584	736	1,042	919	840	739	696	641	563	1	–	–	–	9,100	–	–	–	–	–	–	–	–	–	–	–
Hereford, City and Borough.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Leominster, Borough	25	11	14	19	20	20	21	24	16	13	10	7	5	–	–	–	–	205	–	–	–	–	–	–	–	–	–	–	–
Total for County of Hereford -	551	406	684	767	604	756	1,063	943	856	752	706	648	568	1	–	–	–	9,305	–	–	–	–	–	–	–	–	–	–	–

* The following weights of other denominations than those mentioned in the above Abstract have been stamped

† From a supplementary Return for the year 1867, it appears that the following measures, for which there are no specific legal Standards, were stamped

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
																															DURHAM:—
																															11 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	1	1	9	11	13	10	5	–	48	1	5	16	20	26	13	–	–	–	81	37	–	–	–	Barnard Castle.
–	–	–	–	–	–	–	1	1	–	91	150	170	23	16	–	452	–	3	12	18	12	9	–	–	–	54	22	–	–	–	Bishop Auckland.
–	–	–	–	–	–	–	–	–	–	2	6	6	2	1	–	17	–	1	2	2	1	–	–	–	–	6	11	–	–	–	Castle Eden.
–	–	–	–	–	–	–	4	5	2	52	86	85	3	4	–	241	6	20	42	83	72	81	–	–	–	304	2	–	–	–	Chester.
–	–	–	–	–	–	–	–	7	10	48	71	74	17	15	–	242	–	–	1	–	–	3	1	–	–	5	23	–	–	–	Darlington
–	–	–	–	–	–	–	–	–	–	7	4	3	4	5	–	23	–	–	2	–	–	–	–	–	–	2	–	–	–	–	Durham.
–	–	–	–	–	–	–	–	1	–	13	18	21	8	8	–	69	1	–	9	22	14	–	–	–	–	46	6	–	–	–	Houghton-le-Spring.
–	–	–	–	–	–	–	–	1	2	15	19	23	11	7	–	78	–	–	–	–	–	–	–	–	–	–	2	–	–	–	Jarrow.
–	–	–	–	–	–	–	–	–	–	13	10	14	4	–	–	41	–	–	1	2	–	–	–	–	–	3	17	–	–	–	Lanchester.
–	–	–	–	–	–	–	–	–	–	9	13	15	5	4	–	46	–	–	1	–	2	1	–	–	–	4	5	–	–	–	Stanhope.
–	–	–	–	–	–	–	1	1	1	30	35	35	25	9	–	137	–	1	5	6	11	–	–	–	–	23	14	–	–	–	West Hartlepool.
1	1	1	1	15	–	5	5	5	6	20	35	38	4	3	–	121	–	–	3	–	–	–	–	–	–	3	–	–	–	–	Gateshead, Borough.
															No record kept.																Stockton-on-Tees, Borough.
–	–	–	–	–	–	1	8	26	26	186	247	257	153	126	–	1,030	–	–	–	–	–	–	–	–	–	–	–	–	–	–	South Shields, Boro'.
–	–	–	–	–	–	12	51	90	88	583	999	1,231	386	315	–	3,755	–	–	–	–	–	–	–	–	–	23	23	130	–	–	–	Sunderland, Borough.
1	1	1	1	15	–	18	69	136	137	1,078	1,704	1,985	655	518	–	6,300	8	30	94	153	141	105	–	–	–	23	554	269	–	–	–	Total for County of Durham.
																															ESSEX:—
																															15 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	3	7	1453	2032	603	168	114	–	4,380	11	6	11	13	12	5	5	2	–	65	1	–	–	–	1. Brentwood.
–	–	–	–	–	–	–	–	–	3	43	108	82	38	22	–	296	20	3	14	15	14	10	–	–	–	76	2	–	–	–	2. (District No. 2).
–	–	–	–	–	–	–	–	1	2	38	190	90	25	9	–	355	5	–	–	2	2	3	–	–	–	12	–	–	–	–	3. Colchester.
–	–	–	–	–	–	–	–	–	–	112	148	112	51	42	–	465	8	–	10	9	15	–	–	–	–	42	9	–	–	–	4. Dengie.
–	–	–	–	–	–	–	–	1	–	14	29	24	27	10	–	105	12	2	18	10	21	1	–	–	–	64	4	–	–	–	5. Great Dunmow.
–	–	–	–	–	–	–	–	–	–	748	897	302	117	101	–	2,165	4	11	14	19	10	–	–	–	–	58	–	–	–	–	6. (District No. 6).
–	–	–	–	–	–	–	–	–	–	46	56	61	32	29	–	224	35	3	31	26	30	10	–	–	–	135	6	–	–	–	7. Freshwell.
–	–	–	–	–	–	–	–	–	–	40	56	59	33	27	–	215	24	1	24	27	35	21	–	–	–	132	26	–	–	–	8. (District No. 8).
–	–	–	–	–	–	–	–	–	–	55	108	118	44	33	–	358	51	3	48	63	92	41	–	–	–	298	36	–	–	–	9. Hinckford.
–	–	–	–	–	–	–	–	1	3	37	47	19	11	8	–	126	4	1	2	2	–	–	–	–	–	11	1	–	–	–	10. (District No. 10).
–	–	–	–	–	–	–	–	–	3	27	70	53	42	15	–	210	8	1	26	23	33	14	–	–	–	105	13	–	–	–	11. Rochford.
–	–	–	–	–	–	–	–	1	4	254	348	192	56	37	–	892	24	3	17	16	25	17	–	–	–	102	14	–	–	–	12. Tendring.
–	–	–	–	–	–	–	–	1	1	57	92	72	31	24	–	278	8	1	7	7	6	2	–	–	–	31	3	–	–	–	13. Walden.
–	–	–	–	–	–	–	1	2	–	99	260	115	60	45	–	582	21	3	32	36	62	22	–	–	–	176	2	–	–	–	14. Witham.
–	–	–	–	–	–	–	2	3	3	192	190	82	48	33	–	553	8	2	11	9	10	6	–	–	–	46	–	–	–	–	15. Orsett.
–	–	–	–	–	–	3	6	7	6	102	266	269	80	14	–	753	2	2	9	26	29	13	–	–	–	81	187	–	–	–	Colchester, Borough.
															No return made.																Maldon, Borough.
–	–	–	–	–	–	–	–	–	–	50	93	92	4	4	–	243	1	2	20	16	7	3	–	–	–	49	–	–	–	–	Harwich.
–	–	–	–	–	–	–	–	1	7	167	312	80	31	37	–	635	3	1	4	2	3	2	–	–	–	15	12	–	–	–	Havering-atte-Bower, Liberty of.
–	–	–	–	–	–	–	3	2	1	7	14	11	7	5	–	50	8	–	7	2	2	1	–	–	–	20	–	–	–	–	Saffron Walden, Boro'.
															No Standard weights in use.																Wetherfield, Manor.
–	–	–	–	–	–	3	12	23	40	3,541	5,316	2,436	905	609	–	12,885	257	45	305	323	410	171	5	2	–	–	1,518	316	–	–	–	Total for County of Essex.
																															GLOUCESTERSHIRE:—
																															8 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	1	2	–	22	25	29	9	7	–	95	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Bristol.
–	–	–	–	–	–	–	2	3	2	33	50	56	23	18	–	187	2	–	1	2	3	1	–	–	–	9	–	–	–	–	Cheltenham.
–	–	–	–	–	–	–	–	–	–	29	30	28	16	16	–	119	2	–	–	–	–	–	–	–	–	2	–	–	–	–	Cirencester.
–	–	–	–	–	–	–	–	1	1	20	19	19	8	8	–	76	1	1	–	3	3	–	–	–	–	8	–	–	–	–	Dursley.
–	–	–	–	–	–	1	–	–	–	30	32	26	13	10	–	112	2	–	1	1	–	–	–	–	–	4	–	–	–	–	Forest.
–	–	–	–	–	–	–	–	–	–	2	2	2	2	–	–	8	–	–	1	1	1	1	–	–	–	4	–	–	–	–	Gloucester.
–	–	–	–	–	–	–	–	–	–	5	5	5	2	2	–	19	–	–	–	28	26	–	–	–	–	54	–	–	–	–	Stroud.
–	–	–	–	–	–	–	–	–	–	22	28	24	13	11	–	98	5	–	1	4	4	4	–	–	–	18	2	–	–	–	Stow-in-the-Wold.
															No return made.																Cirencester, Town and Borough.
–	–	–	–	–	–	–	–	–	–	1	1	1	1	1	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Gloucester, City and County of a City and Borough.
–	–	–	–	–	–	–	–	2	2	4	3	3	1	1	–	16	–	–	–	–	1	–	–	–	–	1	–	–	–	–	Tewkesbury, Borough.
															No return made.																Wootton-under-Edge, Town.
																															Bisley, Manor.
																															Churchdown, Manor.
																															Cirencester, 7 Hundreds of.
															Transferred to County.																Hempstede, Manor.
																															Presbury, Manor.
																															Stow-in-the-Wold, Manor.
																															Netherswell, Manor.
–	–	–	–	–	–	1	3	8	5	188	195	193	88	74	–	735	12	1	4	39	38	6	–	–	–	100	3	–	–	–	Total for County of Gloucester.
															Not stated.																HANTS:
Not stated. The Chief Constable of Hants, who is *ex officio* Head Inspector of Weights and Measures, states that the voluminous details required to be filled up in this return would take more time to prepare than it is possible for him to give up to them.																															14 Subdivisions of the County.
–	–	–	–	–	–	8	13	7	4	6	–	38	2	–	3	7	–	2	–	–	–	–	14	–	–	–					Andover, Borough.
															Inspection transferred to County.																Basingstoke, Town.
–	–	–	–	–	–	342	342	–	16	4	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–					Newport, Isle of Wight, Borough.
															No return made.																Portsmouth, Borough.
																															Ryde, Isle of Wight, Town.
															No return made.																Southampton, Boro'.
															No return made.																Winchester, City.
															No return made.																Stockbridge, Boro' and Manor.
–	–	–	–	–	–	–	–	–	8	13	7	4	6	342	380	2	16	7	7	–	2	–	–	–	–	34	–	–	–	–	Total for County of Hants.
																															HEREFORDSHIRE:—
																															9 Subdivisions of the County.
–	–	–	–	–	–	–	–	–	91	108	99	51	45	–	394	5	4	5	7	10	7	–	–	–	38	20	–	–		Hereford, City and Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		Leominster, Borough.
–	–	–	–	–	–	–	–	–	1	11	5	4	3	–	24	–	–	–	–	–	–	–	–	–	–	–	6	–	–		Total for County of Hereford.
–	–	–	–	–	–	–	–	–	92	119	104	55	48	–	418	5	4	5	7	10	7	–	–	–	–	38	26	–	–	–	

in the County of Gloucester, viz., nine 8-lbs. avoirdupois, for which there is no specific legal Standard.
in Sunderland, viz., 23 milk barrels, branded, 4 five-gallon measures, 8 four-gallon measures, 4 three-gallon measures, and 2 thirty-two-gallon measures.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. / District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy - - -										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denomination of which are separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
HERTFORDSHIRE -	29	45	50	59	64	58	86	84	66	63	55	49	37	–	–	–	–	745	–	–	–	–	–	–	–	–	–	–	–
Bishop's Stortford, Town.	No return made.																												
Hemel Hempsted, Town.	No return made.																												
Hertford, Borough -	85	18	29	39	43	44	60	61	74	59	58	62	50	–	–	–	–	682	–	–	–	–	–	–	–	–	–	–	–
Hitchin, Town -	No return made.																												
St. Alban's, Borough	62	44	55	66	64	77	79	76	75	66	55	36	22	–	–	–	–	777	–	–	–	–	–	–	–	–	–	–	–
Cheshunt, Manor -	There are manorial stamps, but																												
Total for County of Herts -	176	107	134	164	171	179	225	221	215	188	168	147	109	–	–	–	–	2,204	–	–	–	–	–	–	–	–	–	–	–
HUNTINGDONSHIRE:—																													
4 Subdivisions of the County, viz.:—																													
Leightonstone, including Borough of Huntingdon.	328	162	457	323	363	550	764	681	650	528	424	301	227	–	–	–	–	5,758	–	–	–	–	–	–	–	–	–	–	–
Hurstingstone -																													
Toseland - -																													
Norman Cross -																													
Huntingdon, Borough	Inspection transferred to County.																												
Total for County of Hunts -	328	162	457	323	363	550	764	681	650	528	424	301	227	–	–	–	–	5,758	–	–	–	–	–	–	–	–	–	–	–
KENT:—																													
17 Subdivisions of the County, viz.:—																													
Ashford - -	182	89	112	141	157	170	216	181	174	141	156	134	123	–	–	–	–	1,970	–	–	–	–	–	–	–	–	–	–	–
Aylesford, North (Rochester).	69	41	54	83	61	77	92	81	92	54	57	77	59	–	–	–	–	897	–	–	–	–	–	–	–	–	–	–	–
Aylesford, Upper, South.	1	–	2	5	5	6	6	6	7	7	5	3	4	–	–	–	–	57	–	–	–	–	–	–	–	–	–	–	–
Aylesford, Lower, South.	See page 144.																												
Bearsted - -	63	26	27	18	18	21	21	18	15	4	6	4	2	–	–	–	–	243	–	–	–	–	–	–	–	–	–	–	–
Blackheath -	No record kept.																												
Bromley - -	89	49	56	67	64	83	86	93	77	73	62	71	64	–	–	–	–	934	–	–	–	–	–	–	–	–	–	–	–
Cranbrook, Scray -	75	37	59	90	136	263	175	98	74	63	18	20	35	2	–	–	–	1,145	–	–	–	–	–	–	–	–	–	–	–
Dartford - -	8	3	15	34	33	40	44	39	59	40	35	35	–	–	–	–	–	385	–	–	–	–	–	–	–	–	–	–	–
Faversham - -	500	600	700	800	800	800	800	906	900	900	1,050	1,000	1,000	–	–	–	–	10,756	–	–	–	–	–	–	–	–	–	–	–
Home Division of St. Augustine.	No record kept.																												
Isle of Sheppey -	–	–	–	1	4	2	1	–	–	–	–	–	–	–	–	–	–	8	–	–	–	–	–	–	–	–	–	–	–
Ramsgate, East Kent, Division of.	27	12	17	23	22	26	27	29	29	25	26	24	17	–	–	–	–	304*	–	–	–	–	–	–	–	–	–	–	–
Sevenoaks - -	63	15	17	17	25	52	27	21	16	11	3	1	1	–	–	–	–	269	–	–	–	–	–	–	–	–	–	–	–
Shepway, Upper Division.	31	16	24	16	27	32	36	49	41	24	19	26	11	–	–	–	–	352	–	–	–	–	–	–	–	–	–	–	–
Tunbridge Wells -	23	4	5	8	16	28	37	38	36	20	24	32	31	–	–	–	–	302	–	–	–	–	–	–	–	–	–	–	–
Wingham - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2,272	2,272	–	–	–	–	–	–	–	–	–	–	–
Bexley, Parish -	Inspection transferred to County.																												
Canterbury, City -	104	41	55	70	70	89	101	89	76	73	63	46	31	–	–	–	–	908	–	–	–	–	–	–	–	–	–	–	–
Chatham, Town -	No return made.																												
Dartford, Parish -	No return made.																												
Deal, Town - -	No record kept.																												
Dover, Borough -	No return made.																												
Faversham, Borough	134	37	25	36	45	51	50	38	36	37	31	33	26	–	–	–	–	579	–	–	–	–	–	–	–	–	–	–	–
Folkestone, Borough	–	–	4	7	9	11	25	13	11	10	9	6	3	–	–	–	–	108	–	–	–	–	–	–	–	–	–	–	–
Gravesend and Milton, Borough.	1	5	11	23	24	24	26	31	27	11	48	53	25	–	–	–	–	309	–	–	–	–	–	–	–	–	–	–	–
Hythe, Borough -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lydd, Borough -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	41	41	–	–	–	–	–	–	–	–	–	–	–
Maidstone, Borough	269	108	91	130	166	191	211	188	163	142	164	157	174	–	–	–	–	2,154	–	–	–	–	–	–	–	–	–	–	–
Queenboro', Borough	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ramsgate, Town -	20	13	10	13	17	15	14	17	13	16	8	8	4	–	–	–	–	168	–	–	–	–	–	–	–	–	–	–	–
Rochester, City -	88	19	27	31	27	19	23	5	9	20	36	41	2	–	–	–	–	347	–	–	–	–	–	–	–	–	–	–	–
Romney, New, Boro'	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	48	48	–	–	–	–	–	–	–	–	–	–	–
Sandwich, Borough -	20	26	8	–	–	–	–	–	–	–	–	–	–	–	–	–	49	103	–	–	–	–	–	–	–	–	–	–	–
Sheppey, Parish of Minster in.	Transferred to County.																												
Tenterden, Borough	34	18	19	33	23	33	29	29	35	28	21	20	18	–	–	–	–	345	–	–	–	–	–	–	–	–	–	–	–
Woolwich, Parish of St. Mary.	No return made.																												
Brasted, Manor -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lewisham, Manor -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Swancombe, Manor -	No return made.																												
Total for County of Kent -	1,801	1,159	1,338	1,646	1,754	2,033	2,041	1,969	1,890	1,699	1,841	1,791	1,630	2	–	–	2,410	25,004	–	–	–	–	–	–	–	–	–	–	–
LANCASHIRE:—																													
17 Subdivisions of the County, viz.:—																													
Ashton-under-Lyne	105	49	77	196	390	464	560	536	453	333	300	228	85	–	–	–	–	3,776	–	–	–	–	–	–	–	–	–	–	–
Bacup - -	116	111	168	261	439	559	647	579	524	395	273	245	137	–	–	–	–	4,394	–	–	–	–	–	–	–	–	–	–	–
Blackburn, Higher	625	540	1088	1314	1,564	1,815	2,224	2,039	1,900	1541	1408	1275	892	–	–	–	–	18,225	–	–	–	–	–	–	–	–	–	–	–
Blackburn, Lower	161	241	730	1030	1,288	1,381	1,735	1,473	1,188	1042	748	390	317	–	–	–	–	11,724	–	–	–	–	–	–	–	–	–	–	–
Bolton -	179	51	153	348	587	515	605	478	395	244	168	94	69	–	–	–	–	3,826	–	–	–	–	–	–	–	–	–	–	–
Bury - -	391	169	281	439	904	1,251	1,407	1,380	1,133	1033	1090	879	556	–	–	–	–	10,913	–	–	–	–	–	–	–	–	–	–	–
Garstang - -	135	61	86	150	160	184	211	161	125	95	79	78	52	1	1	2	–	1,581	–	–	–	–	–	–	–	–	–	–	–
Kirkdale - -	147	74	152	265	400	412	555	460	375	260	170	140	84	–	–	–	–	3,494	–	–	–	–	–	–	–	–	–	–	–
Kirkham - -	158	69	103	184	246	249	344	206	172	150	103	69	40	–	–	–	–	2,093	–	–	–	–	–	–	–	–	–	–	–
Leyland - -	146	49	127	213	286	337	501	508	359	235	209	193	91	–	–	–	–	3,259	–	–	–	–	–	–	–	–	–	–	–
Lonsdale, North -	224	107	162	355	212	284	404	380	365	330	364	278	227	–	–	–	–	3,692	–	–	–	–	–	–	–	–	–	–	–
Lonsdale, South -	250	61	131	191	201	126	224	235	249	143	90	115	71	–	–	–	–	2,117	–	–	–	–	–	–	–	–	–	–	–
Manchester -	97	76	210	449	793	910	1,041	924	709	496	348	246	127	–	–	–	–	6,429	–	–	–	–	–	–	–	–	–	–	–
Ormskirk - -	227	117	257	352	501	557	888	643	524	445	409	369	238	–	–	–	–	5,527	–	–	–	–	–	–	–	–	–	–	–
Prescot - -	See page 144.																												
Rochdale - -	180	43	108	159	473	567	756	678	634	488	406	314	198	–	–	–	–	5,004	–	–	–	–	–	–	–	–	–	–	–
Warrington -	150	210	460	350	580	747	518	600	430	600	510	300	260	–	–	–	–	5,715	–	–	–	–	–	–	–	–	–	–	–

* The following weights of other denominations than those mentioned in the above Abstract have also been stamped in

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy.						Measures of Capacity.																						Measures of Length.	Gas Measures.			County.
						Liquid Measures.											Measures for Dry Goods.															
6 grs.	3 grs.	2 grs.	1 gr.	Total.	Bullion Weight.	4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Yards.	Gas Meters.	Gas Holders.	Total.	District, City, Town, &c.
–	–	–	–	–	–	–	–	–	–	19	30	31	13	7	–	100	15	3	2	2	2	1	–	–	–	–	25	–	–	–	–	HERTFORDSHIRE:—
															No return made.																	Bishop Stortford, Town.
															No return made.																	Hemel Hempstead, Town.
–	–	–	–	–	–	–	–	–	–	18	20	10	8	4	–	60	4	5	2	4	4	–	–	–	–	–	19	–	–	–	–	Hertford, Borough.
															No return made.																	Hitchin, Town.
–	–	–	–	–	–	–	–	–	–	43	105	17	5	3	–	173	4	2	3	–	2	2	–	–	–	–	13	12	–	–	–	St. Alban's, Borough.
they have not been used for years.																																Cheshunt, Manor.
–	–	–	–	–	–	–	–	–	–	80	155	58	26	14	–	333	23	10	7	6	8	3	–	–	–	–	57	12	–	–	–	Total for County of Herts.
																																HUNTINGDONSHIRE:—
																																4 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	3	7	3	316	356	494	150	105	–	1,434	8	2	13	17	17	14	–	–	–	–	71	8	–	–	–	Leightonstone, including Borough of Huntingdon.
																																Hurstingstone.
																																Toseland.
																																Norman Cross.
															Transferred to County.																	Huntingdon, Boro'.
–	–	–	–	–	–	–	3	7	3	316	356	494	150	105	–	1,434	8	2	13	17	17	14	–	–	–		71	8	–	–	–	Total for County of Hunts.
																																KENT:—
																																17 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	2	–	120	191	89	57	47	–	506	49	3	12	270	108	337	–	–	–	–	779	18	–	–	–	Ashford.
–	–	–	–	–	–	–	–	1	–	285	413	93	28	12	–	832	2	–	–	–	–	–	–	–	–	–	2	2	–	–	–	Aylesford, North (Rochester).
–	–	–	–	–	–	–	–	–	–	4	24	16	2	2	–	48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Aylesford, Upper, South.
															See page 144.																	Aylesford, Lower, South.
–	–	–	–	–	–	–	–	–	–	1	11	7	6	2	–	27	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	Bearsted.
															No record kept.																	Blackheath.
–	–	–	–	–	–	–	–	1	2	282	406	73	28	29	–	821	–	–	–	1	1	–	–	–	–	–	2	10	–	–	–	Bromley.
–	–	–	–	–	–	–	–	–	–	14	29	20	2	–	–	65	1	–	3	–	2	–	–	–	–	–	6	12	–	–	–	Cranbrook, Scray.
–	–	–	–	–	–	–	–	–	1	415	390	100	19	18	–	943	3	–	1	2	2	3	–	–	–	–	11	–	–	–	–	Dartford.
–	–	–	–	–	–	–	–	–	–	550	640	380	290	240	–	2,100	10	4	10	3	11	13	–	–	–	–	51	32	–	–	–	Faversham.
															No record kept.																	Home Division of St. Augustine.
–	–	–	–	–	–	–	–	–	3	3	9	–	–	–	–	15	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Isle of Sheppey.
–	–	–	–	–	–	–	–	–	–	22	38	10	14	5	–	89	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ramsgate, East Kent, Division of.
–	–	–	–	–	–	–	–	–	–	24	51	17	–	–	–	92	–	–	1	2	–	–	–	–	–	–	3	–	–	–	–	Sevenoaks.
–	–	–	–	–	–	–	–	–	–	7	20	15	5	5	–	52	2	–	–	–	–	1	1	–	–	–	4	–	–	–	–	Shepway, Upper Division.
–	–	–	–	–	–	–	–	–	1	59	54	12	3	–	–	129	1	–	–	–	–	–	–	–	–	–	1	19	–	–	–	Tunbridge Wells.
–	–	–	–	–	–	–	–	–	–	40	20	11	–	–	–	71	4	–	–	1	–	–	–	–	–	–	5	–	–	–	–	Wingham.
															Transferred to County.																	Bexley, Parish.
–	–	–	–	–	–	–	–	–	–	33	116	54	7	7	–	222	–	–	–	–	1	1	–	–	–	–	2	6	–	–	–	Canterbury, City.
															No return made.																	Chatham, Town.
															No return made.																	Dartford, Parish.
															No record kept.																	Deal, Town.
															No return made.																	Dover, Borough.
–	–	–	–	–	–	–	–	2	2	35	53	32	6	9	–	141	–	–	–	14	20	26	–	–	–	–	60	69	–	–	–	Faversham, Borough.
–	–	–	–	–	–	–	–	2	2	27	49	46	17	18	–	161	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Folkestone, Borough.
–	–	–	–	–	–	–	–	–	–	69	180	22	5	2	–	278	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Gravesend and Milton, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Hythe, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Lydd, Borough.
–	–	–	–	–	–	3	5	2	26	151	197	112	47	42	–	585	137	60	108	724	657	–	–	–	–	–	323	2,009	25	–	–	Maidstone, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	10	1	–	–	Queenboro', Borough.
–	–	–	–	–	–	–	–	–	–	22	71	42	2	2	–	139	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ramsgate, Town.
–	–	–	–	–	–	–	–	–	–	46	102	18	5	3	–	174	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Rochester, City.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	4	–	–	–	Romney, New, Boro'.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	–	–	–	–	–	–	–	–	–	24	35	–	–	–	Sandwich, Borough.
															Transferred to County.																	Parish of Minster in Sheppey.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	2	1	4	–	2	–	–	–	–	11	–	–	–	–	Tenterden, Borough.
															No return made.																	Woolwich, Parish of St. Mary.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Brasted, Manor.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Lewisham, Manor.
															No return made.																	Swancombe, Manor.
–	–	–	–	–	–	3	5	10	37	2,214	3,066	1,169	543	443	–	7,490	222	69	136	1021	802	383	1	–	–	361	2,995	196	–	–	–	Total for County of Kent.
																																LANCASHIRE:—
																																17 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	–	–	37	52	51	10	–	–	150	–	–	–	–	–	–	–	–	–	–	–	18	–	–	–	Ashton-under-Lyne.
–	–	–	–	–	–	–	–	–	–	110	121	136	16	–	–	383	–	–	–	–	–	–	–	–	–	–	–	38	–	–	–	Bacup.
															See p. 144.																	Blackburn, Higher.
–	–	–	–	–	–	–	–	–	–	149	162	129	4	2	–	446	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	Blackburn, Lower.
–	–	–	–	–	–	–	–	–	–	9	18	31	23	–	–	80	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Bolton.
–	–	–	–	–	–	–	–	1	1	2	254	272	171	28	–	729	–	–	–	–	–	–	–	–	–	–	–	27	–	–	–	Bury.
–	–	–	–	–	–	–	–	–	1	2	35	43	30	4	6	121	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	Garstang.
–	–	–	–	–	–	–	–	–	1	–	63	209	167	24	18	482	–	–	–	–	–	–	–	–	–	–	–	8	–	–	–	Kirkdale.
–	–	–	–	–	–	–	–	–	1	1	59	67	61	9	–	198	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	Kirkham.
–	–	–	–	–	–	–	–	–	–	–	153	167	93	17	–	430	–	–	–	4	–	–	–	–	–	–	4	98	–	–	–	Leyland.
–	–	–	–	–	–	–	–	–	7	76	354	373	244	73	26	1,153	–	–	–	–	–	–	–	–	–	–	–	47	–	–	–	Lonsdale, North.
–	–	–	–	–	–	–	–	18	17	209	126	111	8	–	–	489	–	–	–	–	–	–	–	–	–	–	–	106	–	–	–	Lonsdale, South.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	93	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Manchester.
–	–	–	–	–	–	–	–	1	31	344	306	173	18	6	–	879	–	–	2	14	2	–	–	–	–	–	18	63	–	–	–	Ormskirk.
															See p. 144.																	Prescot.
–	–	–	–	–	–	1	7	3	–	56	73	86	–	–	–	226	–	–	–	–	–	–	–	–	–	–	–	9	–	–	–	Rochdale.
–	–	–	–	–	–	10	15	25	32	67	156	150	67	65	–	587	–	–	150	150	–	–	–	–	–	–	300	60	–	–	–	Warrington.

the County of Kent, viz., eleven 3½ lbs. avoirdupois, and six 1¾ lbs. avoirdupois, for which there are no specific legal Standards.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights stamped.																	Troy - - -										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwt.	1 dwt.	12 grs.
LANCASHIRE—*cont.*																												
Ashton-under-Lyne, Borough.	222	123	209	266	452	500	718	682	597	495	449	396	294	–	–	–	–	5,408	–	–	–	–	–	–	–	–	–	–
Accrington, Town	No return made.																											
Blackburn, Borough	553	226	464	708	886	991	1,553	1,380	1,151	1003	919	851	676	–	–	–	–	11,361	–	–	–	–	–	–	–	–	–	–
Bolton, Borough	729	202	323	–	–	–	–	–	–	–	–	–	–	–	–	–	9,146	10,400	–	–	–	–	–	–	–	–	–	–
Clitheroe, Borough	68	58	148	170	202	218	298	252	222	208	168	164	165	–	–	–	–	2,341	–	–	–	–	–	–	–	–	–	–
Lancaster, Borough	No return made.																											
Liverpool, Borough	11623	2072	2347	3628	4,890	5,490	6,323	5,123	4,337	3626	2659	2404	2197	14	5	2	–	56,747	–	–	1	3	3	4	11	8	8	7	5
Manchester, Borough	3,893	1445	1939	2665	4,345	5,421	6,591	6,601	5,847	4904	4587	3467	2869	231	228	2	–	55,035	–	–	–	4	4	17	44	32	25	23	18
Oldham, Borough	695	188	375	549	690	965	1,174	1,056	988	811	664	654	491	3	–	–	–	9,303	–	–	–	–	–	–	–	–	–	–	–
Preston, Borough	688	215	453	618	639	735	814	619	549	403	368	559	240	174	–	–	–	7,074	–	–	–	–	–	–	–	–	–	–	–
Salford, Borough	283	71	72	220	560	652	759	669	621	400	405	361	328	1	–	–	–	5,402	–	–	–	–	–	–	–	–	–	–	–
Staleybridge, Borough	272	101	191	261	339	419	564	485	423	605	339	290	100	6	6	6	–	4,407	–	–	–	–	–	–	–	–	–	–	–
Warrington, Borough	No return made.																											
Wigan, Borough	332	324	285	350	592	436	682	379	413	376	175	194	167	–	–	–	–	4,705	–	–	–	–	–	–	–	–	–	–
Bury Market, Borough	Not stated.																											
Manchester, Manor	Transferred to Borough of Manchester.																											
Rochdale, Manor	No return made.																											
Total for County of Lancaster	22,649	7,060	11099	15631	22,562	26,185	32,096	28,556	24,683	20661	17408	14558	10371	430	240	12	9,146	263,947	–	–	1	7	7	21	55	40	33	30	23
LEICESTERSHIRE:—																												
7 Subdivisions of the County, viz.:—																												
1 District	2	1	6	14	20	29	40	44	29	26	26	25	15	–	–	–	–	277	–	–	–	–	–	–	–	–	–	–
2 „	22	11	25	37	51	58	91	83	80	51	43	51	28	–	–	–	–	631	–	–	–	–	–	–	–	–	–	–
3 „	78	22	44	112	138	196	352	304	270	241	224	136	117	–	–	–	–	2,244	–	–	–	–	–	–	–	–	–	–
4 „	42	3	16	38	29	45	72	72	60	53	54	49	38	–	–	–	–	571	–	–	–	–	–	–	–	–	–	–
5 „	4	1	5	12	14	20	36	31	31	34	33	29	26	–	–	–	–	276	–	–	–	–	–	–	–	–	–	–
6 „	23	11	6	17	26	25	59	39	31	34	34	31	19	–	–	–	–	355	–	–	–	–	–	–	–	–	–	–
7 „	35	21	48	47	78	129	159	133	114	86	79	39	25	1	–	–	–	994	–	–	–	–	–	–	–	–	–	–
Leicester, Borough	115	18	61	170	204	213	391	361	382	348	351	335	300	12	–	–	–	3,261	–	–	–	–	–	–	–	–	–	–
Total for County of Leicester	321	98	211	447	560	715	1,200	1,067	997	873	844	695	568	13	–	–	–	8,609	–	–	–	–	–	–	–	–	–	–
LINCOLNSHIRE:—																												
I. Parts of Lindsey:—																												
1. Spilsby																												
2. Louth																												
3. Brigg																												
4. Horncastle	2,818	1161	2149	2424	983	1,657	2,772	2,298	2,112	1986	1960	1928	1795	437	401	395	–	27,276*	–	–	–	–	–	–	–	–	–	–
5. Market Rasen																												
6. Lincoln, West																												
7. Winterton																												
8. Gainsboro'																												
II. Parts of Holland:—																												
Boston	284	159	370	528	229	420	659	490	554	419	410	462	434	290	111	15	–	5,834	–	–	–	–	–	–	–	–	–	–
Spalding																												
Holland, Elloe	120	74	188	290	132	206	302	303	307	204	224	306	301	290	111	15	–	3,373	–	–	–	–	–	–	–	–	–	–
III. Parts of Kesteven:—																												
Bourn	27	8	10	18	13	22	26	11	9	9	9	10	11	–	–	–	–	183	–	–	–	–	–	–	–	–	–	–
Grantham	120	36	54	91	27	74	127	111	103	93	93	84	–	–	–	–	–	1,013	–	–	–	–	–	–	–	–	–	–
Lincoln	80	38	146	75	68	111	228	200	185	173	168	100	70	–	–	–	–	1,642	–	–	–	–	–	–	–	–	–	–
Sleaford	27	6	19	19	8	13	25	12	12	11	11	14	20	–	–	–	–	197	–	–	–	–	–	–	–	–	–	–
Boston, Borough	84	49	96	–	–	–	–	–	–	–	–	–	–	–	–	–	708	937	–	–	–	–	–	–	–	–	–	–
Grantham, Borough	89	52	68	83	56	106	158	93	84	122	104	83	61	–	–	–	–	1,159	–	–	–	–	–	–	–	–	–	–
Great Grimsby, Borough.	No return made.																											
Lincoln, City and County of City.	381	135	212	251	209	294	328	283	207	182	162	100	63	–	–	–	–	2,807	–	–	–	–	–	–	–	–	–	–
Louth, Borough	702	268	117	389	386	315	496	369	319	244	253	273	234	–	–	–	–	4,365	–	–	–	–	–	–	–	–	–	–
Spalding, Borough	164	85	184	239	266	211	333	300	254	211	194	180	143	–	–	–	–	2,764	–	–	–	–	–	–	–	–	–	–
Stamford, Borough	No inspection during 1866.																											
Alford, Manor	Transferred to County.																											
Total for County of Lincoln	4,896	2,071	3,613	4,407	2,377	3,429	5,454	4,470	4,146	3,654	3,588	3,540	3,132	1,017	623	425	708	51,550	–	–	–	–	–	–	–	–	–	–
MIDDLESEX:—																												
4 Subdivisions of the County, viz.:—																												
Tower Hamlets	2,158	408	484	–	–	–	–	–	–	–	–	–	–	–	–	–	22,770	25,820	–	–	–	–	–	–	–	–	–	–
Clerkenwell	682	330	511	–	–	–	–	–	–	–	–	–	–	–	–	–	18,016	19,539	–	–	–	–	–	–	–	–	–	–
Bloomsbury	632	268	395	–	–	–	–	–	–	–	–	–	–	–	–	–	11,269	12,564	–	–	–	–	–	–	–	–	–	–
Brentford	140	77	75	–	–	–	–	–	–	–	–	–	–	–	–	–	1,905	2,197	–	–	–	–	–	–	–	–	–	–
Chelsea, Parish of St. Luke.	Transferred to County.																											
Islington, Parish of St. Mary.	No return made.																											
Kensington, Parish of St. Mary Abbots.	Transferred to County.																											
London, City	See p. 144.																											
Founders' Company	No return.																											
Metropolitan Board of Works.	No return.																											
Paddington, Parish	No record kept.																											
St. Marylebone, Parish.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5,441	5,441	–	–	–	–	–	–	–	–	–	–
St. Pancras, Parish	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5,724	5,724	–	–	–	–	–	–	–	–	–	–
Tower of London, Liberty.	2	–	–	–	1	1	4	4	3	2	3	2	–	–	–	–	–	22	–	–	–	–	–	–	–	–	–	–
Westminster, City and Liberty.	See p. 144.																											
St. John of Jerusalem, Manor.	Transferred to County.																											
Savoy, Manor	Transferred to County.																											
The Rolls, Liberty of	Transferred to County.																											
Heston, Manor	Transferred to County.																											
Isleworth, Manor	Transferred to County.																											
Twickenham, Manor	Transferred to County.																											
Total for County of Middlesex	3,614	1,083	1,465	–	1	1	4	4	3	2	3	2	–	–	–	–	65,125	71,307	–	–	–	–	–	–	–	–	–	–

* The following weights of other denomination than those mentioned in the above Abstract have also been

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 gallons.	2 gallons.	1 gallon.	½ gallon.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	⅛ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
																															LANCASHIRE—*cont.*
–	–	–	–	–	–	–	1	2	2	129	206	182	24	23	–	569	–	–	–	1	1	–	–	–	–	–	2	30	–	–	–	Ashton-under-Lyne, Borough.
No return made.																															Accrington, Town.
–	–	–	–	–	–	–	3	2	–	463	482	377	120	49	–	1,496	–	–	1	1	–	–	–	–	–	–	2	222	–	–	–	Blackburn, Borough.
–	–	–	–	–	–	1	1	1	2	–	–	–	–	–	1,067	1,072	–	1	–	–	–	–	–	–	–	39	40	33	–	–	–	Bolton, Borough.
–	–	–	–	–	–	1	1	2	1	43	43	45	10	10	–	156	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	Clitheroe, Borough.
No return made.																															Lancaster, Borough.
5	6	5	5	71	63	176	250	227	462	2254	5003	3521	1058	684	–	13,635	161	2	61	292	81	33	6	–	–	–	636	366	–	–	–	Liverpool, Borough.
29	23	25	35	279	51	31	50	102	36	1561	3535	3209	1114	1023	–	10,661	9	21	160	1099	679	87	–	–	–	–	2,055	5,202	–	–	–	Manchester, Borough.
–	–	–	–	–	–	–	–	–	–	200	150	150	57	50	–	607	–	–	–	–	–	–	–	–	–	–	–	111	–	–	–	Oldham, Borough.
–	–	–	–	–	–	2	1	1	1	367	561	278	46	42	–	1,299	15	7	4	103	50	367	–	–	–	–	546	215	–	–	–	Preston, Borough.
–	–	–	–	–	–	2	2	3	6	292	361	347	69	41	–	1,123	–	–	–	–	–	–	–	–	–	–	–	18	–	–	–	Salford, Borough.
No return made.																															Staleybridge, Borough.
–	–	–	–	–	–	–	–	–	–	12	10	10	–	–	–	32	–	–	6	4	4	–	–	–	–	–	14	10	–	–	–	Warrington, Borough.
–	–	–	–	–	–	42	25	20	21	52	61	34	38	20	–	313	–	–	12	9	8	–	–	–	–	–	29	103	–	–	–	Wigan, Borough.
Not stated.																															Bury Market, Borough.
Transferred to Borough of Manchester.																															Manchester, Manor.
No return made.																															Rochdale, Manor.
34	29	30	40	350	114	266	357	418	692	7,292	12596	9,812	2844	2065	1,067	37,409	185	31	396	1677	825	487	6	–	–	39	3,646	6,924	–	–	–	Total for County of Lancaster.
																															LEICESTERSHIRE:—
–	–	–	–	–	–	–	–	–	–	3	4	4	–	1	–	12	12	–	–	10	8	17	–	–	–	–	47	2	–	–	–	7 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	1	1	24	42	51	15	29	–	163	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 District.
–	–	–	–	–	–	–	–	3	–	9	25	33	9	6	–	85	1	–	1	1	1	–	–	–	–	–	4	–	–	–	–	2 „
–	–	–	–	–	–	–	–	1	–	6	4	4	1	1	–	17	4	–	–	–	–	–	–	–	–	–	4	–	–	–	–	3 „
–	–	–	–	–	–	–	1	3	1	3	7	6	1	1	–	23	1	–	–	–	–	–	–	–	–	–	1	24	–	–	–	4 „
–	–	–	–	–	–	–	–	1	–	86	9	11	3	3	–	113	7	6	–	55	71	113	–	–	–	–	252	–	–	–	–	5 „
–	–	–	–	–	–	–	2	4	–	41	50	103	44	36	–	280	1	–	–	–	–	–	–	–	–	–	1	15	–	–	–	6 „
																															7 „
–	–	–	–	–	–	–	4	13	2	363	184	250	81	81	–	978	26	6	1	66	80	130	–	–	–	–	309	53	–	–	–	Leicester, Borough.
																															Total for County of Leicester.
																															LINCOLNSHIRE:—
																															I. Parts of Lindsey:—
																															1. Spilsby.
																															2. Louth.
																															3. Brigg.
–	–	–	–	–	–	–	–	30	23	306	541	651	303	144	–	1,998	7	–	8	–	–	–	–	–	–	–	15	258	–	–	–	4. Horncastle.
																															5. Market Rasen.
																															6. Lincoln, West.
																															7. Winterton.
																															8. Gainsboro'.
																															II. Parts of Holland:—
–	–	–	–	–	–	–	–	–	1	73	73	81	63	26	–	317	–	1	–	–	–	–	–	–	–	–	1	28	–	–	–	Boston.
–	–	–	–	–	–	–	–	–	–	62	62	66	56	25	–	271	–	–	–	–	–	–	–	–	–	–	–	28	–	–	–	Spalding.
																															Holland, Elloe.
																															III. Parts of Kesteven:—
–	–	–	–	–	–	–	–	1	–	4	5	7	2	1	–	20	1	–	1	1	1	–	–	–	–	–	4	–	–	–	–	Bourn.
–	–	–	–	–	–	–	–	–	–	5	6	5	5	–	–	21	11	–	–	–	–	–	–	–	–	–	11	–	–	–	–	Grantham.
–	–	–	–	–	–	–	–	2	2	60	90	105	58	37	–	354	2	–	–	–	–	–	–	–	–	–	2	18	–	–	–	Lincoln.
–	–	–	–	–	–	–	–	–	–	11	14	12	3	3	–	43	–	–	–	–	–	–	–	–	–	–	–	48	–	–	–	Sleaford.
–	–	–	–	–	–	–	–	2	4	7	39	96	–	–	–	148	–	–	10	14	13	11	–	–	–	–	48	16	–	–	–	Boston, Borough.
–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	–	9	1	1	1	–	–	–	–	–	–	–	3	1	–	–	–	Grantham, Borough.
No return made.																															Great Grimsby, Borough.
–	–	–	–	–	–	–	–	1	1	14	35	106	15	4	–	176	8	–	4	2	4	–	–	–	–	–	18	52	–	–	–	Lincoln, City and County of City.
–	–	–	–	–	–	1	6	19	9	52	89	90	36	30	–	332	15	–	18	58	41	20	–	–	–	–	152	165	–	–	–	Louth, Borough.
–	–	–	–	–	–	–	–	1	–	7	7	14	6	2	–	37	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	Spalding, Borough.
No inspection during 1866.																															Stamford, Borough.
Transferred to County.																															Alford, Manor.
–	–	–	–	–	–	2	7	57	41	602	962	1,234	548	273	–	3,726	46	2	42	75	59	31	–	–	–	–	255	614	–	–	–	Total for County of Lincoln.
																															MIDDLESEX:—
																															4 Subdivisions of the County, viz.:—
–	–	–	–	–	–	12	60	70	86	–	–	–	–	–	26,230	26,458	–	–	–	–	–	–	–	–	–	487	487	30	–	–	–	Tower Hamlets.
–	–	–	–	–	–	–	2	18	34	–	–	–	–	–	13,011	13,065	1	1	–	–	–	–	–	–	–	88	90	30	–	–	–	Clerkenwell.
–	–	–	–	–	–	5	10	23	38	–	–	–	–	–	19,368	19,444	1	4	–	–	–	–	–	–	–	8	13	139	–	–	–	Bloomsbury.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1,082	1,082	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Brentford.
Transferred to County.																															Chelsea, Parish of St. Luke.
No return made.																															Islington, Parish of St. Mary.
Transferred to County.																															Kensington, Parish of St. Mary Abbots.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	29,877	29,877	–	–	–	–	–	–	–	–	–	15,612	15612	12635	–	–	–	London, City.
No return.																															Founders' Company.
No return.																												38298	–	–	Metropolitan Board of Works.
No record kept.																															Paddington, Parish.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1,120	1,120	–	–	–	–	–	–	–	–	–	65	65	62	–	–	–	St. Marylebone, Parish.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5,629	5,629	1	1	1	–	–	–	–	–	–	–	3	–	–	–	–	St. Pancras, Parish.
–	–	–	–	–	–	–	–	1	–	14	7	–	1	–	–	23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Tower of London, Liberty of.
See p. 144.																															Westminster, City and Liberty.
Transferred to County.																															St. John of Jerusalem, Manor.
Transferred to County.																															Savoy, Manor.
Transferred to County.																															The Rolls, Liberty of.
Transferred to County.																															Heston, Manor.
Transferred to County.																															Isleworth, Manor.
Transferred to County.																															Twickenham, Manor.
–	–	–	–	–	–	17	72	112	158	14	7	–	1	–	96,317	96,698	3	3	1	–	–	–	–	–	–	16,260	16270	12896	38298	–	–	Total for County of Middlesex.

stamped in the County of Lincoln, viz., sixty-five 3½-lbs. avoirdupois, for which there is no specific legal Standard.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. / District, City, Town, &c.	Avoirdupois Weights stamped.																	Troy - - -										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total. Weights of the denominations which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
MONMOUTHSHIRE:—																													
County of Monmouth	486	214	287	329	349	450	1,007	413	413	413	413	413	413		–	–	–	5,600	–	–	–	–	–	–	–	–	–	–	–
Monmouth, Borough	No return made.																												
Newport, Borough	469	83	85	116	117	139	178	144	136	115	89	75	52	–	–	–	–	1,798	–	–	–	–	–	–	–	–	–	–	–
Total for County of Monmouth	955	297	372	445	466	589	1,185	557	549	528	502	488	465	–	–	–	–	7,398	–	–	–	–	–	–	–	–	–	–	–
NORFOLK:—																													
15 Subdivisions of the County, viz.:—																													
Acle	1	–	1	–	1	1	1	1	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	–	–	–
Aylsham	15	7	2	2	12	5	12	3	2	2	1	1	1	–	–	–	–	65*	–	–	–	–	–	–	–	–	–	–	–
Dereham	16	8	7	8	8	10	18	11	12	15	17	12	12	–	–	–	–	154	–	–	–	–	–	–	–	–	–	–	–
Docking	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Downham	33	7	32	31	18	52	71	46	45	30	31	102	89	–	–	–	–	587	–	–	–	–	–	–	–	–	–	–	–
Harling	5	3	4	3	8	9	13	11	9	6	8	6	5	–	–	–	–	90	–	–	–	–	–	–	–	–	–	–	–
Holt	–	1	2	1	5	15	13	10	5	11	13	15	16	–	–	–	–	107	–	–	–	–	–	–	–	–	–	–	–
Loddon	2	3	3	4	4	4	2	5	2	6	3	4	4	–	–	–	–	46	–	–	–	–	–	–	–	–	–	–	–
Norwich	7	5	8	9	7	9	13	12	6	5	7	5	2	–	–	–	–	95	–	–	–	–	–	–	–	–	–	–	–
N. Walsham	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	–	16	–	–	–	–	–	–	–	–	–	–	–
Pulham	1	4	15	16	16	33	39	39	38	30	31	23	21	–	–	–	–	306	–	–	–	–	–	–	–	–	–	–	–
Swaffham	72	18	25	34	20	27	22	13	10	8	7	5	2	–	–	–	–	263	–	–	–	–	–	–	–	–	–	–	–
Torrington	11	4	7	6	7	16	14	8	4	8	5	3	4	–	–	–	–	97	–	–	–	–	–	–	–	–	–	–	–
Walsingham	15	8	20	22	9	27	50	44	41	30	29	45	30	–	–	–	–	370	–	–	–	–	–	–	–	–	–	–	–
Wymondham	–	–	–	–	–	–	–	–	–	1	1	1	1	1	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–
Buckingham, New, Borough.	No record kept.																												
King's Lynn, Borough	No return made.																												
Norwich, City and County of City.	1,352	276	621	737	721	1,422	1,549	1,050	1,037	912	835	705	526	26	–	–	–	11,769	–	–	–	–	–	–	–	–	–	–	–
Thetford, Borough	4	1	–	3	–	2	1	1	1	2	2	2	3	2	–	–	–	24	–	–	–	–	–	–	–	–	–	–	–
Walsham, Nth., Parish	Transferred to County.																												
Yarmouth, Borough	87	37	43	65	73	91	106	90	90	70	73	50	62	–	–	–	–	937	–	–	–	–	–	–	–	–	–	–	–
Total for County of Norfolk	1,622	383	791	942	910	1,724	1,925	1,345	1,303	1,137	1,064	980	779	30	1	1	–	14,937	–	–	–	–	–	–	–	–	–	–	–
NORTHAMPTON:—																													
County	1,034	680	831	1,460	1,667	1,970	1,323	1,088	910	712	578	436	375	5	1	–	–	13,070	–	–	–	–	–	–	–	–	–	–	–
Daventry, Borough	No return made.																												
Higham Ferrers, Boro'	No return made.																												
Northampton, Boro'	140	64	110	143	217	276	434	401	388	366	351	338	328	–	–	–	–	3,556	–	–	–	–	–	–	–	–	–	–	–
Peterborough, Liberty	171	74	188	268	339	292	261	231	165	126	85	55	30	3	–	–	–	2,288	–	–	–	–	–	–	–	–	–	–	–
Total for County of Northampton	1,345	818	1,129	1,871	2,223	2,538	2,018	1,720	1,463	1,204	1,014	829	733	8	1	1	–	18,914	–	–	–	–	–	–	–	–	–	–	–
NORTHUMBERLAND:—																													
6 Subdivisions of the County, viz.:—																													
Castle Ward, East	236	107	206	211	165	193	283	239	213	152	148	126	95	–	–	–	–	2,374	–	–	–	–	–	–	–	–	–	–	–
Castle Ward, West	781	110	278	289	231	289	429	396	333	262	247	248	228	–	–	–	–	4,121	–	–	–	–	–	–	–	–	–	–	–
CoquetdaleWard&c.	103	59	113	125	92	133	206	212	142	115	108	153	109	–	–	1	–	1,671	–	–	–	–	–	–	–	–	–	–	–
Morpeth Ward, &c.	264	193	479	534	422	508	790	742	643	484	468	433	349	–	–	–	–	6,309	–	–	–	–	–	–	–	–	–	–	–
Norham Ward, &c.	70	20	26	34	26	35	43	29	22	20	20	18	16	–	–	–	–	379	–	–	–	–	–	–	–	–	–	–	–
Tinedale Ward, &c.	190	136	238	251	174	203	334	298	261	232	226	207	174	–	–	–	–	2,924	–	–	–	–	–	–	–	–	–	–	–
Berwick-upon-Tweed, County of, Borough, and Town.	No account kept.																												
Newcastle-on-Tyne, Town and County.	860	190	304	–	–	–	–	–	–	–	–	–	–	–	–	–	2,670	4,024	–	–	–	–	–	–	–	–	–	–	–
Tynemouth, Borough	726	257	437	747	890	850	560	600	450	380	390	380	380	–	–	–	–	7,047	–	–	–	–	–	–	–	–	–	–	–
Alnwick, Manor and Borough.	Not stated.																												
Corbridge, Prudhoe, and Newburn, Manor and Barony.	Not stated.																												
Hexham, Manor	No return made.																												
Rothbury, Manor	Not stated.																												
Warkworth, &c., Manor and Borough.	Not stated.																												
Total for County of Northumberland	3,230	1,072	2,081	2,191	2,000	2,211	2,645	2,516	2,064	1,645	1,607	1,565	1,351	–	–	1	2,670	28,849	–	–	–	–	–	–	–	–	–	–	–
NOTTINGHAM:—																													
6 Subdivisions of the County, viz.:—																													
Bingham, Mansfield, Newark, Nottingham, Retford, Worksop	558	261	1,029	1,409	753	923	1,693	1,748	1,559	1,429	1,333	1,255	1,117	18	6	–	–	15,091‡	–	–	–	–	–	–	–	–	–	–	–
Newark, Borough	86	45	77	105	100	88	104	81	68	59	56	55	54	–	–	–	–	979	–	–	–	–	–	–	–	–	–	–	–
Nottingham, Town and County of Town.	963	454	860	1,427	1,612	1,895	2,486	2,325	2,158	1,729	1,665	1,354	1,208	–	–	–	–	20,135	–	–	–	–	–	–	–	–	–	–	–
Retford, East, Borough	Transferred to County.																												
Total for County of Nottingham	1,608	760	1,966	2,941	2,465	2,906	4,283	4,154	3,784	3,217	3,054	2,664	2,379	18	6	–	–	36,205	–	–	–	–	–	–	–	–	–	–	–
OXFORDSHIRE:—																													
County of Oxford	2,200	1,023	1,052	1,492	1,957	2,333	2,480	2,323	2,205	1,995	1,769	1,502	1,036	–	–	–	–	23,376	–	–	–	–	–	–	–	–	–	–	–
Banbury, Borough	6	3	1	1	1	5	6	6	6	5	4	4	4	–	–	–	–	52	–	–	–	–	–	–	–	–	–	–	–
Chipping Norton Boro'	No return made.																												
Oxford University	268	138	158	199	330	328	365	334	315	277	249	151	108	–	–	–	–	3,220	1	1	1	1	1	1	1	–	–	–	–
Total for County of Oxford	2,483	1,164	1,211	1,692	2,288	2,666	2,851	2,663	2,526	2,277	2,022	1,657	1,148	–	–	–	–	26,648	1	1	1	1	1	1	1	–	–	–	–

* The following weights of other denominations than those mentioned in the above Abstract have also been stamped, viz., in the County
† The following measures of other denominations than those mentioned in the above Abstract have also been stamped
‡ The following weights of other denominations than those stated in the above Abstract have been stamped
§ The following measure of other denomination than those mentioned in the above Abstract has been

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	102	102	2	1	2	3	48	26	–	–	–	–	82	3	–	–	–	MONMOUTHSHIRE:— County of Monmouth.
															No return made.																	
–	–	–	–	–	–	4	2	2	2	34	33	31	18	32	–	158	1	–	–	2	10	1	–	–	–	–	14	–	–	–	–	Monmouth, Borough. Newport, Borough.
–	–	–	–	–	–	4	2	2	2	34	33	31	18	32	102	260	3	1	2	5	58	27	–	–	–	–	96	3	–	–	–	Total for County of Monmouth.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	NORFOLK:— 15 Subdivisions of the County, viz.:— Acle.
–	–	–	–	–	–	–	–	–	–	2	6	4	2	2	–	16	4	–	1	1	2	–	–	–	–	–	8†	–	–	–	–	Aylsham.
–	–	–	–	–	–	–	–	–	–	1	9	24	26	6	5	–	71	2	1	6	6	10	6	–	–	–	–	31	25	–	–	–	Dereham.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Docking.
–	–	–	–	–	–	–	–	–	2	6	14	14	6	10	2	–	54	–	–	–	2	–	–	–	–	–	–	–	–	–	–	Downham.
–	–	–	–	–	–	–	–	–	1	–	9	19	9	7	6	–	51	3	–	1	2	–	–	–	–	–	6	–	–	–	–	Harling.
–	–	–	–	–	–	–	–	–	1	–	6	16	20	5	–	–	48	1	–	–	–	–	–	–	–	–	1	–	–	–	–	Holt.
–	–	–	–	–	–	–	–	–	–	–	3	5	7	4	1	–	20	–	–	1	–	–	–	–	–	–	1	–	–	–	–	Loddon.
–	–	–	–	–	–	–	–	–	–	–	1	6	5	2	2	–	16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Norwich.
–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	–	9	1	1	1	1	1	1	–	–	–	–	6	1	–	–	–	N. Walsham.
–	–	–	–	–	–	–	–	–	–	1	3	5	6	3	–	18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Pulham.
–	–	–	–	–	–	–	–	–	–	–	1	2	1	1	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Swaffham.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Torrington.
–	–	–	–	–	–	–	1	2	2	2	4	5	2	3	–	21	3	–	6	5	4	2	–	–	–	–	20	–	–	–	–	Walsingham.
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	2	2	2	2	–	–	–	–	–	9	–	–	–	–	Wymondham.
															No record kept.																	Buckingham, New, Borough.
															No return made.																	King's Lynn, Borough.
–	–	–	–	–	–	1	4	19	16	551	1,185	968	223	98	–	3,065	350	17	267	264	602	270	265	179	97	–	2,311	12	–	–	–	Norwich, City and County of City.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Thetford, Borough.
															Transferred to County.																	Walsham, Nth., Parish.
–	–	–	–	–	–	–	2	5	11	8	146	79	16	7	–	274	28	–	52	66	124	74	–	–	–	–	344	–	–	–	–	Yarmouth, Borough.
–	–	–	–	–	–	2	8	31	37	607	1,430	1,137	285	131	–	3,668	393	21	337	347	745	353	265	179	97	–	2,737	38	–	–	–	Total for County of Norfolk.
–	–	–	–	–	–	–	6	9	6	892	1,124	1,144	646	490	–	4,317	30	10	27	91	102	32	–	–	–	–	292	92	–	–	–	NORTHAMPTON:— County.
															No return made.																	Daventry, Borough.
															No return made.																	Higham Ferrers, Boro'.
–	–	–	–	–	–	2	4	3	1	84	130	146	38	25	–	433	14	6	20	147	147	121	–	–	–	–	455	49	–	–	–	Northampton, Boro'.
–	–	–	–	–	–	1	13	52	19	164	206	252	93	76	–	876	15	3	36	–	39	22	–	–	–	–	115	46	–	–	–	Peterborough, Liberty.
–	–	–	–	–	–	3	23	64	26	1,140	1,460	1,542	777	591	–	5,626	59	19	83	238	288	175	–	–	–	–	862	187	–	–	–	Total for County of Northampton.
–	–	–	–	–	–	1	3	10	12	82	124	150	80	73	–	535	–	–	1	5	3	9	–	–	–	–	18	–	–	–	–	NORTHUMBERLAND:— 6 Subdivisions of the County, viz.:— Castle Ward, East.
–	–	–	–	–	–	–	–	57	88	121	230	235	91	72	–	894	–	2	3	–	–	–	–	–	–	–	5	–	–	–	–	Castle Ward, West.
–	–	–	–	–	–	–	3	8	4	28	64	69	27	26	–	229	4	–	–	–	–	–	–	–	–	–	4	43	–	–	–	Coquetdale Ward, &c.
–	–	–	–	–	–	1	2	23	53	249	378	417	188	166	–	1,477	1	9	–	5	6	3	–	–	–	–	24	82	–	–	–	Morpeth Ward, &c.
–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Norham Ward, &c.
–	–	–	–	–	–	4	5	33	40	120	130	153	54	47	–	586	–	4	–	1	3	–	–	–	–	–	8	39	–	–	–	Tinedale Ward, &c.
															No account kept.																	Berwick-upon-Tweed, County of, Borough, and Town.
–	–	–	–	–	–	1	1	35	20	3	–	–	–	–	519	579	Included in the foregoing											63	–	–	–	Newcastle-on-Tyne, Town and County.
–	–	–	–	–	–	4	6	11	11	166	187	172	134	137	–	828	1	1	2	2	–	–	–	–	–	–	6	60	–	–	–	Tynemouth, Borough.
															Not stated.																	Alnwick, Manor and Borough.
															Not stated.																	Corbridge, Prudhoe, and Newburn, Manor and Barony.
															No return made.																	Hexham, Manor.
															Not stated.																	Rothbury, Manor.
															Not stated.																	Warkworth, &c., Manor and Borough.
–	–	–	–	–	–	11	20	177	228	770	1,114	1,196	574	521	519	5,130	6	16	6	13	12	12	–	–	–	–	65	287	–	–	–	Total for County of Northumberland.
–	–	–	–	–	–	–	5	11	8	235	401	375	101	66	–	1,197§	10	1	3	4	8	3	–	–	–	–	29	63	–	–	–	NOTTINGHAM:— 6 Subdivisions of the County, viz.:— Bingham. Mansfield. Newark. Nottingham. Retford. Worksop.
–	–	–	–	–	–	–	–	2	–	–	23	33	–	–	–	58	–	–	1	1	1	1	–	–	–	–	4	1	–	–	–	Newark, Borough.
–	–	–	–	–	–	3	10	40	24	143	539	1,401	113	91	–	2,364	17	6	1	–	3	–	–	–	–	–	27	215	–	–	–	Nottingham, Town and County of Town.
															Transferred to County.																	Retford, East, Borough.
–	–	–	–	–	–	3	15	53	27	378	963	1,809	214	157	–	3,619	27	7	5	5	12	4	–	–	–	–	60	279	–	–	–	Total for County of Nottingham.
–	–	–	–	–	–	3	13	16	11	862	1,140	1,087	561	511	–	4,204	47	5	23	57	48	18	–	–	–	–	198	22	–	–	–	OXFORDSHIRE:— County of Oxford.
–	–	–	–	–	–	–	–	–	–	–	4	5	1	1	–	11	2	–	–	1	1	2	–	–	–	–	6	–	–	–	–	Banbury, Borough.
															No return made.																	Chipping Norton Boro'.
–	–	–	–	7	–	–	11	12	17	119	281	195	70	43	–	748	7	6	18	25	10	–	–	–	–	–	66	–	–	–	–	Oxford University.
–	–	–	–	7	–	3	24	28	28	981	1,425	1,287	632	555	–	4,963	56	11	41	83	59	20	–	–	–	–	270	22	–	–	–	Total for County of Oxford.

of Monmouth, one 3½-lbs. avoirdupois, and in the County of Norfolk, two of 3½-lbs. weight, for which there is no specific legal Standard.
for the County of Norfolk, viz., one 3-gallon, three of ½-pint, and two of ¼-pint, for which there are no specific legal Standards.
in the County of Nottingham, viz., 828 of 3½-lbs. each, for which there is no specific legal Standard.
stamped in the County of Nottingham, viz., one of 3 gallons, for which there is no specific legal Standard.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights stamped.																	Troy									
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	80 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
RUTLAND :—	64	19	51	56	74	126	205	168	133	100	105	61	62	–	–	–	–	1,224	–	–	–	–	–	–	–	–	–	–	–
Total for County of Rutland	64	19	51	56	74	126	205	168	133	100	105	61	62	–	–	–	–	1,224	–	–	–	–	–	–	–	–	–	–	–
SALOP :—																													
2 Subdivisions of the County, viz. :—																													
1. North	689	315	387	588	–	–	–	–	–	–	–	–	–	–	–	–	5,526	7,505	–	–	–	–	–	–	–	–	–	–	–
2. South	343	238	342	513	1,688	1,566	344	344	344	344	344	344	344	4	–	–	–	7,102	–	–	–	–	–	–	–	–	–	–	–
Bridgnorth, Borough	64	42	51	–	–	–	–	–	–	–	–	–	–	–	–	–	295	452	–	–	–	–	–	–	–	–	–	–	–
Ludlow, Town	105	38	51	49	65	73	91	71	58	42	35	18	12	–	–	–	–	708	–	–	–	–	–	–	–	–	–	–	–
Oswestry, Borough	37	19	23	33	–	–	–	–	–	–	–	–	–	–	–	–	134	246	–	–	–	–	–	–	–	–	–	–	–
Shrewsbury, Borough	287	89	185	–	–	–	–	–	–	–	–	–	–	–	–	–	1,944	2,505	–	–	–	–	–	–	–	–	–	–	–
Wenlock, Borough	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2,934	2,934	–	–	–	–	–	–	–	–	–	–	–
Total for County of Salop	1,525	741	1,039	1,183	1,753	1,639	435	415	402	386	379	362	356	4	–	–	10,833	21,452	–	–	–	–	–	–	–	–	–	–	–
SOMERSET :—																													
15 Subdivisions of the County, viz. :—																													
Axbridge	188	89	104	138	158	133	121	98	80	56	39	34	28	–	–	–	–	1,266	–	–	–	–	–	–	–	–	–	–	–
Bridgewater	10	9	7	7	15	5	6	4	3	4	6	6	6	–	–	–	–	88	–	–	–	–	–	–	–	–	–	–	–
Dunster	42	25	28	26	40	42	54	50	33	24	19	12	11	2	–	–	–	408	–	–	–	–	–	–	–	–	–	–	–
Frome	69	45	47	54	57	52	51	12	6	1	–	–	–	–	–	–	–	394	–	–	–	–	–	–	–	–	–	–	–
Glastonbury	–	–	–	1	3	9	7	1	4	1	1	1	–	–	–	–	–	28	–	–	–	–	–	–	–	–	–	–	–
Ilminster	34	22	14	15	35	46	68	66	52	31	24	20	31	–	–	–	–	458	–	–	–	–	–	–	–	–	–	–	–
Long Ashton	18	11	14	21	34	32	27	27	22	7	7	5	1	–	–	–	–	226	–	–	–	–	–	–	–	–	–	–	–
Somerton	7	5	7	10	15	15	15	15	18	22	20	16	11	3	2	1	–	182	–	–	–	–	–	–	–	–	–	–	–
Taunton	44	52	52	48	91	88	116	109	109	66	64	58	54	–	–	–	–	951	–	–	–	–	–	–	–	–	–	–	–
Templecloud	62	31	43	60	75	99	87	61	33	18	10	11	6	–	–	–	–	596	–	–	–	–	–	–	–	–	–	–	–
Weston	16	14	6	22	41	49	51	27	28	15	14	13	1	–	–	–	–	297	–	–	–	–	–	–	–	–	–	–	–
Williton	31	15	13	15	14	15	22	25	13	8	6	10	5	–	–	–	–	192	–	–	–	–	–	–	–	–	–	–	–
Wincanton	32	35	31	38	57	65	64	62	52	44	40	24	23	–	–	–	–	567	–	–	–	–	–	–	–	–	–	–	–
Wiveliscombe	5	5	4	11	11	10	12	14	16	14	11	15	10	5	4	2	–	149	–	–	–	–	–	–	–	–	–	–	–
Yeovil	7	8	6	14	28	26	28	30	29	16	11	16	23	–	–	–	–	242	–	–	–	–	–	–	–	–	–	–	–
Axbridge, Borough	7	2	6	17	14	17	18	13	13	10	8	4	2	–	–	–	–	131	–	–	–	–	–	–	–	–	–	–	–
Bath, City and Boro'	186	150	214	298	416	543	626	616	550	474	376	208	118	–	–	–	–	4,775	–	–	–	–	–	–	–	–	–	–	–
Bridgewater, Boro'	195	67	63	98	103	122	178	181	155	160	184	123	134	–	–	–	–	1,763	–	–	–	–	–	–	–	–	–	–	–
*Bristol, City and County of City.	9,113	1,862	2,225	3,057	3,644	4,098	5,029	4,353	4,074	3,423	3,066	2,445	2,195	–	–	–	–	48,584	2	2	–	6	7	6	8	–	–	–	–
Glastonbury, Boro'	Transferred to County.																												
Wells, Borough	Transferred to County.																												
Yeovil, Borough	2	2	2	4	2	3	13	15	8	9	12	13	6	–	–	–	–	91	–	–	–	–	–	–	–	–	–	–	–
Watchett, Manor and Borough, and adjacent Manors.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wiveliscombe, Boro', and adjacent Manors.	20	16	17	26	31	31	24	33	29	14	16	9	1	–	–	–	–	267	–	–	–	–	–	–	–	–	–	–	–
Total for County of Somerset	10,088	2,465	2,903	3,980	4,884	5,500	6,617	5,812	5,327	4,417	3,934	3,043	2,666	10	6	3	–	61,655	2	2	–	6	7	6	8	–	1	–	–
STAFFORDSHIRE :—																													
3 Subdivisions of the County :—																	34,742	34,742											
Bilston, Market	No return made.																												
Burslem, Town	No return made.																												
Hanley, Market	–	–	7	3	7	6	1	–	–	–	–	–	–	–	–	–	–	24	–	–	–	–	–	–	–	–	–	–	–
Lichfield, City	No return made.																												
Newcastle-under-Lyne, Borough.	105	50	168	269	282	422	533	459	626	676	484	309	501	–	–	–	–	4,884	–	–	–	–	–	–	–	–	–	–	–
Stafford, Borough	6	4	12	15	16	20	22	26	22	24	18	16	14	–	–	–	–	215	–	–	–	–	–	–	–	–	–	–	–
Tamworth, Borough	5	4	3	5	6	2	7	3	5	–	–	–	–	–	–	–	–	40	–	–	–	–	–	–	–	–	–	–	–
Walsall, Borough	64	41	85	148	266	319	413	430	347	217	184	80	49	–	–	–	–	2,643	2	2	2	2	2	2	–	–	–	–	–
Wolverhampton, Boro'	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6,000	6,000	–	–	–	–	–	–	–	–	–	–	–
Total for County of Stafford	180	99	275	440	577	769	976	918	1,000	917	686	405	564	–	–	–	40,742	48,548	2	2	2	2	2	2	–	–	–	–	–
SUFFOLK :—																													
2 Divisions of the County :—																													
East Suffolk, 5 Districts, viz. :—																													
Beccles	171	87	77	105	153	211	250	222	176	113	83	50	37	–	–	–	–	1,735	–	–	–	–	–	–	–	–	–	–	–
Yoxford	187	72	109	122	128	159	187	149	127	107	101	60	37	–	–	–	–	1,545	–	–	–	–	–	–	–	–	–	–	–
Suffolk	194	90	132	131	155	187	146	112	150	114	88	47	22	–	–	–	–	1,568	–	–	–	–	–	–	–	–	–	–	–
Woodbridge	77	39	60	78	95	125	155	150	111	123	102	72	57	–	–	–	–	1,244	–	–	–	–	–	–	–	–	–	–	–
Ipswich (No. 5)	230	115	129	155	109	255	282	222	188	192	126	68	39	–	–	–	–	2,110	–	–	–	–	–	–	–	–	–	–	–
West Suffolk, 5 Districts, viz. :—																													
Head Quarters, Bury St. Edmund's.	70	46	102	125	84	128	149	126	117	115	105	96	95	–	–	–	–	1,358	–	–	–	–	–	–	–	–	–	–	–
Cosford	515	229	465	549	612	647	762	648	586	466	428	363	335	–	–	–	–	6,605	–	–	–	–	–	–	–	–	–	–	–
Mildenhall	291	177	268	310	261	368	455	389	353	319	276	228	196	–	–	–	–	3,891	–	–	–	–	–	–	–	–	–	–	–
Clare	305	216	484	727	574	694	775	699	607	504	423	346	284	–	–	–	–	6,638	–	–	–	–	–	–	–	–	–	–	–
Ixworth	281	161	291	332	268	367	460	380	351	285	260	218	193	–	–	–	–	3,847	–	–	–	–	–	–	–	–	–	–	–
Aldeburgh, Borough	Not stated.																												
Bury St. Edmund's, Borough.	114	58	122	147	154	181	256	214	212	168	149	107	79	–	–	–	–	1,961	–	–	–	–	–	–	–	–	–	–	–
Eye, Borough	No record kept.																												
Halesworth, Town	Transferred to County.																												
Ipswich, Borough	159	40	75	96	107	150	196	163	148	138	122	146	137	–	–	–	–	1,677	–	–	–	–	–	–	–	–	–	–	–
Orford, Borough	No return made.																												
Southwold, Borough and Manor.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Stowmarket, Town	Transferred to County.																												
Sudbury, Borough	172	39	63	63	65	92	110	93	86	74	64	45	39	–	–	–	–	1,005	–	–	–	–	–	–	–	–	–	–	–
Total for County of Suffolk	2,766	1,369	2,377	2,940	2,765	3,564	4,183	3,567	3,212	2,718	2,327	1,846	1,550	–	–	–	–	35,184	–	–	–	–	–	–	–	–	–	–	–

* The following measures of other denominations than those mentioned in the above Abstract have been stamped in the City of Bristol,

and Measures in Great Britain, for the Year ended 31 December 1866—*continued*.

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gal.	½ gal.	Quart.	Pint.	¼ pint.	Gill.	⅛ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	½ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
–	–	–	–	–	–	–	–	–	–	22	17	18	7	7	–	71	4	–	3	6	5	–	–	–	–	–	18	7	–	–	–	RUTLAND.
–	–	–	–	–	–	–	–	–	–	22	17	18	7	7	–	71	4	–	3	6	5	–	–	–	–	–	18	7	–	–	–	Total for County of Rutland.
																															SALOP.
–	–	–	–	–	–	–	1	3	7	–	–	–	–	–	424	435	2	7	–	–	–	–	–	–	–	58	67	53	–	–	–	2 Subdivisions of the County, viz. :—
–	–	–	–	–	–	–	–	17	36	50	50	30	15	22	–	220	2	2	15	4	12	10	–	–	–	–	45	30	–	–	–	1. North.
–	–	–	–	–	–	–	–	2	4	20	19	20	–	–	–	65	1	1	16	4	3	2	–	–	–	–	27	–	–	–	–	2. South.
–	–	–	–	–	–	–	–	–	–	11	21	20	1	–	–	53	–	–	15	13	9	–	–	–	–	–	37	30	–	–	–	Bridgnorth, Borough.
–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	20	–	1	1	–	–	–	–	–	–	–	2	–	–	–	–	Ludlow, Town.
–	–	–	–	–	–	–	1	7	19	–	–	–	–	–	118	145	4	1	–	–	–	–	–	–	–	68	73	59	–	–	–	Oswestry, Borough.
–	–	–	–	–	–	–	2	12	–	–	–	–	–	–	130	144	1	8	–	–	–	–	–	–	–	47	51	17	–	–	–	Shrewsbury, Borough.
																															Wenlock, Borough.
–	–	–	–	–	–	–	4	41	66	101	90	70	16	22	672	1,082	10	15	47	21	24	12	–	–	–	173	302	189	–	–	–	Total for County of Salop.
																															SOMERSET :—
–	–	–	–	–	–	–	–	3	6	12	21	14	3	1	–	60	–	–	1	–	–	–	–	–	–	–	1	2	–	–	–	15 Subdivisions of the County, viz. :—
–	–	–	–	–	–	–	–	–	–	–	1	2	2	–	–	7	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	Axbridge.
–	–	–	–	–	–	–	–	–	1	2	5	4	1	–	–	13	5	1	10	3	3	3	–	–	–	–	25	14	–	–	–	Bridgewater.
–	–	–	–	–	–	–	–	–	–	–	108	–	–	–	–	108	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Dunster.
–	–	–	–	–	–	–	3	63	54	22	27	29	3	–	–	201	–	1	1	1	–	–	–	–	–	–	3	–	–	–	–	Frome.
–	–	–	–	–	–	–	–	–	1	26	24	23	5	6	–	85	–	5	10	2	1	–	–	–	–	–	18	–	–	–	–	Glastonbury.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ilminster.
–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Long Ashton.
–	–	–	–	–	–	–	–	–	–	11	27	18	13	4	–	73	–	–	14	8	9	–	–	–	–	–	31	–	–	–	–	Somerton.
–	–	–	–	–	–	–	–	–	3	2	9	–	–	–	–	14	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	Taunton.
–	–	–	–	–	–	–	–	–	–	1	1	1	1	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Templecloud.
–	–	–	–	–	–	–	1	–	1	6	11	6	2	1	–	28	1	2	4	–	–	–	–	–	–	–	7	3	–	–	–	Weston.
–	–	–	–	–	–	–	–	20	19	11	13	10	2	2	–	77	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	Williton.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	Wincanton.
–	–	–	–	–	–	–	–	3	–	6	8	8	–	–	–	25	–	5	–	1	–	–	–	–	–	–	6	–	–	–	–	Wiveliscombe.
–	–	–	–	–	–	–	2	1	1	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Yeovil.
–	–	–	–	–	–	9	15	16	11	128	263	148	84	56	–	730	2	–	43	76	71	29	–	–	–	–	221	24	–	–	–	Axbridge, Borough.
–	–	–	–	–	–	–	–	32	30	9	14	22	8	4	–	119	1	1	–	–	–	–	–	–	–	–	2	–	–	–	–	Bath, City and Boro'.
–	–	–	–	32	9	21	30	86	94	421	687	699	474	311	–	2,823*	85	60	33	311	356	268	–	–	–	–	1113	111	–	–	–	Bridgewater, Boro'.
																															*Bristol, City and County of City.
																Transferred to County.															Glastonbury, Boro'.
																Transferred to County.															Wells, Borough.
–	–	–	–	–	–	–	–	2	1	2	4	3	2	2	–	16	–	–	1	1	–	–	–	–	–	–	2	32	–	–	–	Yeovil, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Watchett, Manor and Borough, and adjacent Manors.
–	–	–	–	–	–	–	–	–	–	12	12	12	12	12	–	60	–	5	4	6	–	–	–	–	–	–	15	6	–	–	–	Wiveliscombe, Boro', and adjacent Manors.
–	–	–	–	32	9	30	51	226	222	671	1,236	1,000	612	401	–	4,449	94	80	123	409	440	300	–	–	–	–	1,446	201	–	–	–	Total for County of Somerset.
															4,390	4,390										417		203				STAFFORDSHIRE :—
																No return made.															3 Subdivisions of the County :—
																No return made.															Bilston, Market.
																States that he does not use measures.															Burslem, Town.
																No return made.															Hanley, Market.
–	–	–	–	–	–	–	–	7	21	189	124	137	11	8	–	497	1	–	–	19	23	14	–	–	–	–	57	1	–	–	–	Lichfield, City.
–	–	–	–	–	–	–	1	4	4	36	34	28	14	7	–	128	5	5	8	16	16	–	–	–	–	–	50	50	–	–	–	Newcastle-under-Lyne, Borough.
–	–	–	–	–	–	–	4	1	1	4	–	–	–	–	–	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Stafford, Borough.
–	–	–	–	12	–	–	–	–	–	36	41	38	22	16	–	153	1	1	1	7	17	6	–	–	–	–	33	1	–	–	–	Tamworth, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	145	145	–	–	–	–	–	–	–	–	–	127	127	50	–	–	–	Walsall, Borough.
																															Wolverhampton, Boro'.
–	–	–	–	12	–	–	5	12	26	265	199	203	47	31	4,535	5,323	7	6	9	42	56	20	–	–	–	544	267	305	–	–	–	Total for County of Stafford.
																															SUFFOLK :—
–	–	–	–	–	–	–	–	–	3	3	19	19	1	1	–	46	8	3	13	11	20	7	–	–	–	–	62	47	–	–	–	2 Divisions of the County, viz. :—
–	–	–	–	–	–	–	–	–	1	4	6	6	3	1	–	21	10	1	15	16	28	20	–	–	–	–	90	5	–	–	–	East Suffolk, 5 Districts, viz. :—
–	–	–	–	–	–	–	–	1	1	10	36	18	8	3	–	77	2	–	–	1	1	–	–	–	–	–	4	13	–	–	–	Beccles.
–	–	–	–	–	–	–	–	–	2	6	20	14	9	4	–	55	23	5	17	12	28	26	–	–	–	–	111	18	–	–	–	Yoxford.
–	–	–	–	–	–	–	–	–	–	6	6	7	2	–	–	21	3	–	1	1	1	–	–	–	–	–	6	1	–	–	–	Saxmundham.
																															Woodbridge.
																															Ipswich (No. 5).
–	–	–	–	–	–	–	–	–	–	2	2	4	2	2	–	12	2	–	1	–	–	–	–	–	–	–	3	–	–	–	–	West Suffolk, 5 Districts, viz. :—
																															Head Quarters, Bury St. Edmund's.
–	–	–	–	–	–	–	–	–	2	23	49	25	4	–	–	103	14	1	9	7	10	6	–	–	–	–	47	8	–	–	–	Cosford.
–	–	–	–	–	–	–	–	–	2	13	24	54	16	8	–	117	3	–	7	7	9	6	–	–	–	–	32	8	–	–	–	Mildenhall.
–	–	–	–	–	–	–	1	1	–	70	73	82	33	25	–	285	20	–	18	15	14	3	–	–	–	–	70	3	–	–	–	Clare.
–	–	–	–	–	–	–	–	–	–	9	15	17	4	3	–	48	8	–	–	1	1	1	–	–	–	–	11	–	–	–	–	Ixworth.
																Not stated.															Aldeburgh, Borough.
–	–	–	–	–	–	–	2	2	1	10	26	32	7	7	–	87	23	2	8	10	25	14	–	–	–	–	82	–	–	–	–	Bury St. Edmund's, Borough.
																No record kept.															Eye, Borough.
																Transferred to County.															Halesworth, Town.
–	–	–	–	–	–	–	4	7	5	31	56	62	9	8	–	182	38	2	29	40	58	45	53	–	–	–	265	14	–	–	–	Ipswich, Borough.
																No return made.															Orford, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Southwold, Borough and Manor.
																Transferred to County.															Stowmarket, Town.
–	–	–	–	–	–	–	–	–	–	9	19	18	4	2	–	52	18	1	22	31	45	19	–	–	–	–	136	12	–	–	–	Sudbury, Borough.
–	–	–	–	–	–	7	11	17	196	351	358	302	64	–	–	1,106	172	15	140	152	240	147	53	–	–	–	919	129	–	–	–	Total for County of Suffolk.

viz., two of 5 gallons each and nine of 3 gallons each, for which there are no specific legal Standards.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights stamped.																	Troy - - -										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
SURREY :—																													
11 Subdivisions of the County, viz. :—																													
A. West District -	1,214	439	205	–	–	–	–	–	–	–	–	–	–	–	–	–	15,764	17,622	–	–	–	–	–	–	–	–	–	–	–
A. East „ -	1,280	541	655	–	–	–	–	–	–	–	–	–	–	–	–	–	13,513	15,989	–	–	–	–	–	–	–	–	–	–	–
B. - - - -	43	6	6	–	–	–	–	–	–	–	–	–	–	–	–	–	534	639	–	–	–	–	–	–	–	–	–	–	–
C. - - - -	172	124	126	–	–	–	–	–	–	–	–	–	–	–	–	–	2,172	2,594	–	–	–	–	–	–	–	–	–	–	–
D. (Guildford)	12	7	28	25	27	34	36	33	26	21	12	11	12	–	–	–	–	284	–	–	–	–	–	–	–	–	–	–	–
E. (Reigate) -	8	3	8	30	26	25	22	32	28	17	16	15	12	–	–	–	–	242	–	–	–	–	–	–	–	–	–	–	–
No. 1 (Chertsey) -	45	14	33	80	75	65	106	80	72	38	40	39	30	–	–	–	–	717	–	–	–	–	–	–	–	–	–	–	–
No. 2 (Farnham) -	81	32	24	24	36	48	57	41	44	35	32	18	13	–	–	–	–	485	–	–	–	–	–	–	–	–	–	–	–
No. 3 (Dorking) -	3	2	5	17	14	18	15	19	17	15	13	11	9	–	–	–	–	158	–	–	–	–	–	–	–	–	–	–	–
No. 4 (Godstone) -	21	5	4	9	13	18	20	16	12	18	15	12	9	–	–	–	–	172	–	–	–	–	–	–	–	–	–	–	–
No. 5 (Godalming)	4	4	19	13	16	19	27	24	21	19	22	18	14	–	–	–	–	220	–	–	–	–	–	–	–	–	–	–	–
Battersea, Parish -	Transferred to County.																												
Camberwell, Parish of St. Giles.	Transferred to County.																												
Clapham, Parish -	Transferred to County.																												
Godalming, Borough	Transferred to County.																												
Guildford, Borough -	148	30	40	43	60	69	76	66	76	59	51	33	20	–	–	–	–	771	–	–	–	–	–	–	–	–	–	–	–
Kingston, Borough -	No return made.																												
Mitcham, Parish -	Transferred to County.																												
Southwark, Town and Borough.	Transferred to County.																												
Streatham, Parish -	No return made.																												
Croydon, Manor -	Transferred to County.																												
Southwark, Manor -	Transferred to City of London.																												
Total for County of Surrey -	3,031	1,207	1,153	241	267	296	359	311	296	222	201	157	119	–	–	–	32,033	39,893	–	–	–	–	–	–	–	–	–	–	–
SUSSEX :—																													
11 Subdivisions of the County, viz. :—																													
Arundel and Worthing.	51	38	87	134	151	181	221	330	206	201	173	108	71	–	–	–	–	1,952	–	–	–	–	–	–	–	–	–	–	–
Battle - - -	59	34	37	72	76	85	89	85	75	78	71	60	48	–	–	–	–	869	–	–	–	–	–	–	–	–	–	–	–
Chichester - -	149	60	69	112	141	153	169	158	151	132	113	81	33	–	–	–	–	1,521	–	–	–	–	–	–	–	–	–	–	–
East Grinsted -	127	78	125	172	190	217	282	244	227	210	190	153	135	–	–	–	–	2,350	–	–	–	–	–	–	–	–	–	–	–
East Sussex, No. 2	50	33	43	56	73	71	98	102	108	80	37	33	26	–	–	–	–	760	–	–	–	–	–	–	–	–	–	–	–
Horsham - -	70	45	60	68	97	93	134	126	139	128	132	94	97	–	–	–	–	1,283	–	–	–	–	–	–	–	–	–	–	–
Lewes - - -	659	310	396	444	515	572	703	622	565	515	489	305	219	1	1	–	–	6,316	–	–	–	–	–	–	–	–	–	–	–
Mansfield - -	211	113	171	216	216	281	313	364	247	212	179	162	123	9	–	–	–	2,817	–	–	–	–	–	–	–	–	–	–	–
Midhurst - -	33	27	42	56	65	81	109	95	86	82	65	57	43	–	–	–	–	843	–	–	–	–	–	–	–	–	–	–	–
Petworth - -	161	92	112	153	129	177	167	157	138	125	108	82	56	–	–	–	–	1,657	–	–	–	–	–	–	–	–	–	–	–
Steyning - -	300	129	181	261	280	238	357	354	332	291	180	156	101	–	–	–	–	3,160	–	–	–	–	–	–	–	–	–	–	–
Arundel, Borough -	Not stated.																												
Battle, Town - -	Transferred to County.																												
Brighton, Borough -	184	117	142	204	230	273	345	357	251	212	295	256	277	–	–	–	–	3,143	1	1	1	1	1	–	–	–	–	–	–
Chichester, City -	58	36	39	34	45	47	70	65	70	57	53	38	17	–	–	–	–	629	–	–	–	–	–	–	–	–	–	–	–
Grinsted, East, Town	Transferred to County.																												
Hastings, Borough -	112	58	52	57	81	147	205	106	158	122	99	70	59	–	–	–	–	1,386	–	–	–	–	–	–	–	–	–	–	–
Pevensey, Liberty of	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rye, Borough - -	No record kept.																												
Winchelsea, Borough	No return made.																												
Worthing, Town -	Transferred to County.																												
Total for County of Sussex -	2,224	1,170	1,556	2,041	2,289	2,616	3,262	3,225	2,753	2,395	2,184	1,655	1,305	10	1	–	–	28,686	1	1	1	1	1	–	–	–	–	–	–
WARWICK :—																													
5 Hundreds of the County, viz. :—																													
Barlickway - -	115	57	35	44	56	59	168	174	132	104	86	54	29	–	–	–	–	1,113	–	–	–	–	–	–	–	–	–	–	–
Hemlingford, Part 1	228	121	186	233	444	543	626	564	495	411	325	179	96	–	–	–	–	4,451	–	–	–	–	–	–	–	–	–	–	–
„ Part 2	157	67	84	102	233	257	311	245	213	157	124	59	41	–	–	–	–	2,050	–	–	–	–	–	–	–	–	–	–	–
Kineton - - -	490	233	200	308	352	405	484	439	395	328	317	209	175	–	–	–	–	4,335	–	–	–	–	–	–	–	–	–	–	–
Knightlow - -	170	69	93	126	217	189	337	291	341	293	209	139	104	–	–	–	–	2,578	–	–	–	–	–	–	–	–	–	–	–
Birmingham, Borough	3,141	1,197	1,300	–	–	–	–	–	–	–	–	–	–	–	–	–	43,672	49,310	–	–	–	–	–	–	–	–	–	–	–
Coventry, City - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	934	934	–	–	–	–	–	–	–	–	–	–	–
Leamington, Parish -	11	8	13	26	69	84	106	108	91	95	81	54	37	–	–	–	–	783	–	–	–	–	–	–	–	–	–	–	–
Stratford - on - Avon, Borough.	Not known.																												
Sutton Coldfield, Royal, Town, Manor of.	No account kept.																												
Warwick, Borough -	9	11	10	19	32	30	58	50	45	40	37	24	17	–	–	–	–	382	–	–	–	–	–	–	–	–	–	–	–
Total for County of Warwick -	4,321	1,763	1,921	853	1,403	1,567	2,090	1,871	1,712	1,428	1,179	718	499	–	–	–	44,606	65,936	–	–	–	–	–	–	–	–	–	–	–
WESTMORELAND :—																													
County - - -	290	165	304	432	280	365	539	433	343	285	324	318	252	–	–	–	–	4,330	–	–	–	–	–	–	–	–	–	–	–
Kirby - in - Kendal, Borough.	Transferred to County.																												
Total for County of Westmoreland	290	165	304	432	280	365	539	433	343	285	324	318	252	–	–	–	–	4,330	–	–	–	–	–	–	–	–	–	–	–
WILTSHIRE :—																													
9 Subdivisions of the County, viz. :—																													
Bradford - -	7	23	5	8	11	4	32	31	31	34	45	31	31	–	–	–	–	293	–	–	–	–	–	–	–	–	–	–	–
Hindon - - -	–	–	–	1	1	2	7	4	4	4	4	4	4	–	–	–	–	35	–	–	–	–	–	–	–	–	–	–	–
Swindon - -	14	13	10	10	11	12	19	16	15	14	16	14	13	–	–	–	–	177	–	–	–	–	–	–	–	–	–	–	–
Warminster - -	12	6	5	4	4	4	4	8	8	11	14	14	12	–	–	–	–	106	–	–	–	–	–	–	–	–	–	–	–
Devizes - - -	4	7	8	9	9	16	22	22	14	9	9	9	9	–	–	–	–	147	–	–	–	–	–	–	–	–	–	–	–
Malmesbury - -	3	–	1	1	12	18	31	31	31	31	31	31	31	–	–	–	–	252	–	–	–	–	–	–	–	–	–	–	–
Marlboro', Eversley and Pewsey.	2	1	2	6	17	12	13	11	11	10	24	23	26	–	–	–	–	158	–	–	–	–	–	–	–	–	–	–	–
Chippenham - -	7	4	2	–	–	–	7	7	7	7	7	7	7	7	–	–	–	69	–	–	–	–	–	–	–	–	–	–	–
Salisbury - -	15	11	13	8	6	6	17	14	13	11	10	11	11	–	–	–	–	146	–	–	–	–	–	–	–	–	–	–	–
Devizes, Borough -	No return made.																												
Marlborough, Boro' -	2	1	1	5	16	11	11	9	9	8	20	29	19	–	–	–	–	141	–	–	–	–	–	–	–	–	–	–	–
Sarum, New, City and Borough.	132	66	72	80	88	66	90	113	112	110	106	83	58	–	–	–	–	1,176	–	–	–	–	–	–	–	–	–	–	–
Swindon, Market -	No return made.																												
Aldborne, Manor -	No return made.																												
Trowbridge, Manor -	Transferred to County.																												
Total for County of Wilts -	198	132	119	132	175	151	253	266	255	249	286	256	221	7	–	–	–	2,701	–	–	–	–	–	–	–	–	–	–	–

* The following measures of other denominations than those mentioned in the above Abstract have also been

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	½ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
																																SURREY:—
						2	10	44	48	–	–	–	–	–	10,420	10524	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	11 Subdivisions of the County, viz.:—
						2	4	16	68	–	–	–	–	–	20,056	20146	–	–	–	–	–	–	–	–	–	6	6	82	–	–	–	A. West District.
						–	–	–	–	–	–	–	–	–	1,238	1,238	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	A. East „
						–	–	–	–	–	–	–	–	–	852	852	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	B. „
						–	–	–	–	8	7	5	1	1	–	22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	C. „
						–	–	–	2	47	43	41	–	–	–	133	–	–	8	–	–	–	–	–	–	–	8	11	–	–	–	D. (Guildford).
						–	–	–	–	41	75	24	7	12	–	159	2	1	2	2	2	–	–	–	–	–	9	–	–	–	–	E. (Reigate).
						–	–	–	–	6	12	11	6	9	–	41	–	–	–	1	2	1	–	–	–	–	4	2	–	–	–	No. 1 (Chertsey).
						–	–	1	–	13	14	9	–	–	–	37	–	–	4	–	–	–	–	–	–	–	4	2	–	–	–	No. 2 (Farnham).
						–	–	–	1	67	94	40	7	4	–	213	1	1	1	–	–	–	–	–	–	–	3	37	–	–	–	No. 3 (Dorking).
						–	1	1	–	7	4	4	–	–	–	17	1	1	1	1	1	1	–	–	–	–	6	–	–	–	–	No. 4 (Godstone).
															Transferred to County.																No. 5 (Godalming).
															Transferred to County.																Battersea, Parish.
																															Camberwell, Parish of St. Giles.
															Transferred to County.																Clapham, Parish.
															Transferred to County.																Godalming, Borough.
–	–	–	–	–	–	–	–	1	2	143	291	135	2	–	–	574	–	–	–	–	–	1	–	–	–	–	1	12	–	–	–	Guildford, Borough.
															No return made.																Kingston, Borough.
															Transferred to County.																Mitcham, Parish.
															Transferred to County.																Southwark, Town and Borough.
																															Streatham, Parish.
															No return made.																Croydon, Manor.
															Transferred to County.																Southwark, Manor.
															Transferred to City of London.																
–	–	–	–	–	–	4	15	63	121	332	540	269	23	26	32,566	33,959	4	3	16	4	5	3	–	–	–	6	41	158	–	–	–	Total for County of Surrey.
																																SUSSEX:—
																															11 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	–	–	2	2	1	–	–	–	5	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	Arundel and Worthing.
										–	–	–	–	–	–	–	6	3	–	12	12	18	–	–	–	–	51	–	–	–	–	Battle.
						–	–	–	–	14	15	14	7	6	–	56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Chichester.
						–	–	–	1	29	51	23	24	4	–	134	–	3	1	1	2	2	–	–	–	–	9	52	–	–	–	East Grinsted.
						–	–	–	2	62	141	72	20	6	–	311	4	4	–	5	4	2	–	–	–	–	19	–	–	–	–	East Sussex, No. 2.
						–	–	–	–	18	16	16	11	8	–	69	3	–	–	–	–	–	–	–	–	–	3	–	–	–	–	Horsham.
						–	–	2	3	132	261	131	98	47	–	677	33	21	3	49	37	16	15	17	–	–	191	154	–	–	–	Lewes.
						–	–	2	2	40	61	16	17	14	–	152	7	9	5	12	10	11	–	–	–	–	54	31	–	–	–	Mansfield.
						–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Midhurst.
						–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Petworth.
						–	–	–	2	1	6	13	7	3	–	32	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	Steyning.
															Not stated.																Arundel, Borough.
															Transferred to County.																Battle, Town.
–	–	–	–	5	–	2	3	9	8	90	179	255	53	42	–	641	1	13	10	73	68	43	7	6	–	–	221	29	–	–	–	Brighton, Borough.
–	–	–	–	–	–	–	1	–	–	1	1	1	1	–	–	5	1	–	18	18	–	–	–	–	–	–	37	–	–	–	–	Chichester, City.
															Transferred to County.																Grinsted, East, Town.
–	–	–	–	–	–	–	4	5	2	68	103	199	41	18	–	440	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Hastings, Borough.
															No record kept.																Pevensey, Liberty of.
															No return made.																Rye, Borough.
															Transferred to County.																Winchelsea, Borough.
																															Worthing, Town.
–	–	–	–	5	–	2	10	22	27	457	836	741	279	148	–	2,522	56	53	38	170	133	92	22	23	–	–	587	266	–	–	–	Total for County of Sussex.
																																WARWICK:—
																															5 Hundreds of the County, viz.:—
–	–	–	–	–	–	–	–	–	–	6	5	3	1	1	–	16	–	–	–	1	1	1	–	–	–	–	3	–	–	–	–	Barlickway.
–	–	–	–	–	–	–	–	2	4	41	64	47	23	8	–	189	2	3	5	8	7	10	10	5	–	–	50	36	–	–	–	Hemlingford, Part 1.
–	–	–	–	–	–	–	–	–	–	3	9	5	4	3	–	24	1	1	1	–	–	1	–	–	–	–	4	2	–	–	–	„ Part 2.
–	–	–	–	–	–	–	–	–	–	70	95	128	90	57	–	440	8	–	14	14	–	–	–	–	–	–	36	51	–	–	–	Kineton.
–	–	–	–	–	–	–	–	–	–	14	26	26	13	8	–	87	4	–	–	1	3	3	1	–	–	–	12	–	–	–	–	Knightlow.
–	–	–	–	–	–	37	88	280	225	–	–	–	–	–	8,627	9,257*	257	71	–	–	–	–	–	–	–	2,569	2,897	2,285	–	–	–	Birmingham, Boro'.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	50	50	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Coventry, City.
–	–	–	–	–	–	–	–	–	–	5	7	6	1	–	–	19	–	–	–	5	6	6	–	–	–	–	17	–	–	–	–	Leamington, Parish.
															Not known.																Stratford-on-Avon, Borough.
															No account kept.																Sutton Coldfield, Royal Town, Manor of.
																															Warwick, Borough.
–	–	–	–	–	–	1	3	4	2	20	27	–	5	5	–	67	2	–	–	1	2	2	–	–	–	–	7	–	–	–	–	Total for County of Warwick.
–	–	–	–	–	–	38	91	286	231	159	233	215	137	82	8,677	10,149	274	75	20	30	19	23	11	5	–	2,569	3,026	2,374	–	–	–	
																																WESTMORELAND:—
–	–	–	–	–	–	–	–	3	3	181	112	84	19	13	–	415	1	7	–	–	–	–	–	–	–	–	8	55	–	–	–	County.
															Transferred to County.																Kirby-in-Kendal, Borough.
–	–	–	–	–	–	–	–	3	3	181	112	84	19	13	–	415	1	7	–	–	–	–	–	–	–	–	8	55	–	–	–	Total for County of Westmoreland.
																																WILTSHIRE:—
																															9 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	34	26	3	4	5	1	2	–	75	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Bradford.
–	–	–	–	–	–	–	–	1	1	2	2	2	1	1	–	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Hindon.
–	–	–	–	–	–	1	–	2	–	14	12	10	2	2	–	43	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Swindon.
–	–	–	–	–	–	–	–	3	10	8	9	5	2	1	–	38	15	33	52	39	32	7	–	–	–	–	178	2	–	–	–	Warminster.
–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	–	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Devizes.
–	–	–	–	–	–	–	–	–	–	4	3	10	1	–	–	18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Malmesbury.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	1	–	–	–	Marlboro', Eversley, and Pewsey.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Chippenham.
–	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	3	1	–	1	1	1	–	–	–	–	–	4	–	–	–	–	Salisbury.
															No return made.																Devizes, Borough.
																															Marlborough, Boro'.
–	–	–	–	–	–	1	1	1	1	1	1	1	1	1	–	9	1	1	1	1	1	1	–	–	–	–	6	1	–	–	–	Sarum, New, City and Borough.
															No return made.																Swindon, Market.
															No return made.																Aldborne, Manor.
															Transferred to County.																Trowbridge, Manor.
–	–	–	–	–	–	2	1	42	39	34	33	35	9	8	–	203	18	34	54	41	34	8	–	–	–	–	189	4	–	–	–	Total for County of Wilts.

stamped in the Borough of Birmingham, viz., eight 5 gallons, twenty 3 gallons, for which there are no specific legal Standards.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. / District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy									
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
WORCESTER:—																													
10 Subdivisions of the County, viz.:—																													
Bromsgrove	15	9	11	11	20	25	36	40	41	35	31	29	25	–	–	–	–	328	–	–	–	–	–	–	–	–	–	–	–
Dudley, Borough	729	61	225	310	570	656	738	734	651	597	554	484	336	–	–	–	–	6,645	–	–	–	–	–	–	–	–	–	–	–
Halesowen	69	52	84	97	167	182	207	193	163	131	117	77	51	2	–	–	–	1,592	–	–	–	–	–	–	–	–	–	–	–
Northfield	25	16	38	54	69	73	89	76	73	71	59	47	31	–	–	–	–	721	–	–	–	–	–	–	–	–	–	–	–
Pershore	170	73	76	98	135	173	182	173	151	138	94	51	54	–	–	–	–	1,568	–	–	–	–	–	–	–	–	–	–	–
Stourbridge	139	49	117	155	200	245	260	245	220	206	206	210	106	–	–	–	–	2,358	–	–	–	–	–	–	–	–	–	–	–
Stourport	26	10	3	4	5	17	9	32	6	11	10	20	4	–	–	–	–	157	–	–	–	–	–	–	–	–	–	–	–
Hundred House, Tenbury.	21	14	21	23	30	32	57	54	49	47	38	31	28	–	–	–	–	445	–	–	–	–	–	–	–	–	–	–	–
Upton	118	44	53	66	81	101	137	134	118	103	78	70	57	–	–	–	–	1,160	–	–	–	–	–	–	–	–	–	–	–
Worcester	88	37	75	93	84	111	113	113	103	101	84	71	47	–	–	–	–	1,120	–	–	–	–	–	–	–	–	–	–	–
Bewdley, Borough	No account kept.																												
Droitwich, Borough	2	–	1	–	10	11	14	11	10	11	17	17	17	–	–	–	–	121	–	–	–	–	–	–	–	–	–	–	–
Dudley, Parish and Borough.	Transferred to County.																												
Evesham, Borough	Transferred to County.																												
Kidderminster, Boro'	105	57	146	90	110	68	165	–	–	–	–	–	–	–	–	–	1,098	1,839	–	–	–	–	–	–	–	–	–	–	–
Stourbridge, Town	Transferred to County.																												
Worcester, City	209	115	156	190	146	141	250	230	222	228	229	234	227	27	–	–	–	2,604	–	–	–	–	–	–	–	–	–	–	–
Cutsdam, Manor	No return made.																												
Evesham, Manor																													
Total for County of Worcester	1,716	537	1,006	1,119	1,627	1,835	2,257	2,035	1,807	1,679	1,517	1,341	983	29	–	–	1,098	20,658	–	–	–	–	–	–	–	–	–	–	–
YORKSHIRE:—																													
East Riding	1,183	611	1,049	1,056	460	815	950	826	686	556	485	417	226	2	–	–	–	9,322	–	–	–	–	–	–	–	–	–	–	–
North Riding	889	462	753	809	592	928	1,676	1,341	861	629	535	415	207	–	–	–	–	10,097	–	–	–	–	–	–	–	–	–	–	–
West Riding	No return made.																												
Bradford, Borough	Not stated.																												
Beverley, Borough	264	94	133	135	99	121	144	151	138	131	150	138	126	–	–	–	–	1,824	–	–	–	–	–	–	–	–	–	–	–
Doncaster, Borough	441	182	311	342	313	318	404	277	260	230	195	156	102	71	–	–	–	3,602	–	–	–	–	–	–	–	–	–	–	–
Hedon, Borough	Transferred to East Riding of County.																												
Hull. See Kingston-on-Hull.																													
Kingston-on-Hull, Borough.	258	68	176	226	156	172	402	264	332	222	232	173	142	–	–	–	–	2,823*	–	–	–	–	–	–	–	–	–	–	–
Leeds, Borough	See p. 144.																												
Middlesboro', Borough	No record kept.																												
Pontefract, Borough	156	76	175	185	102	201	230	175	152	132	118	104	57	–	–	–	–	1,863	–	–	–	–	–	–	–	–	–	–	–
Richmond, Borough	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ripon, City, or Boro' and Liberty.	88	48	75	103	95	77	132	123	114	85	90	81	63	–	–	–	–	1,174	–	–	–	–	–	–	–	–	–	–	–
Scarborough, Boro'	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	232	232	–	–	–	–	–	–	–	–	–	–	–
Sheffield, Borough	2,440	508	1,182	1,457	1,633	2,325	3,655	3,373	2,953	2,733	2,476	1,989	1,488	4	3	–	–	28,220	–	1	1	5	7	–	–	–	–	–	–
Sheffield, Town	No return made.																												
York, City	52	18	109	100	67	92	226	173	137	140	40	38	36	–	–	–	–	1,228	–	–	–	–	–	–	–	–	–	–	–
Burlington, Manor	Transferred to County (East Riding).																												
Eccleshall-Bierlow, Manor.	Transferred to Borough of Sheffield.																												
Honley, &c., Manor	No Standards kept.																												
Leeds, Kirkgate, &c., Manors.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wakefield, Manor, and Town of Halifax.	No return made.																												
Halifax. See Wakefield																													
Total for County of York	5,771	2,067	3,963	4,413	3,517	5,049	7,819	6,703	5,633	4,858	4,321	3,511	2,447	77	3	–	232	60,385	–	1	1	5	7	–	–	–	–	–	–
WALES																													
ANGLESEA:—																													
County	914	364	541	812	881	938	1,281	–	–	–	–	–	–	–	–	–	4,724	10,455†	–	–	–	–	–	–	–	–	–	–	–
Total for County of Anglesea	914	364	541	812	881	938	1,281	–	–	–	–	–	–	–	–	–	4,724	10,455	–	–	–	–	–	–	–	–	–	–	–
BRECON:—																													
County	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Brecon, Borough	16	11	23	27	28	25	37	37	37	37	37	37	37	–	–	–	–	389	–	–	–	–	–	–	–	–	–	–	–
Total for County of Brecon	16	11	23	27	28	25	37	37	37	37	37	37	37	–	–	–	–	389	–	–	–	–	–	–	–	–	–	–	–
CARMARTHEN:—																													
County	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Carmarthen, County of Borough.	No return made.																												
Kidwelly, Borough	13	5	2	6	2	10	17	12	8	15	6	12	–	–	–	–	–	108	–	–	–	–	–	–	–	–	–	–	–
Llanelly, Parish	Transferred to County.																												
Total for County of Carmarthen	13	5	2	6	2	10	17	12	8	15	6	12	–	–	–	–	–	108	–	–	–	–	–	–	–	–	–	–	–

* The following weights of other denominations than those mentioned in the above Abstract have also been stamped in the Borough of Kingston-on-Hull, viz., 118 3½-lbs.
† The following weights of other denominations than those mentioned in the above Abstract have been stamped in the County of Anglesea, viz., 184 weights of 60 lbs. Standards.
‡ The following measures of other denomination than those mentioned in the above Abstract have been stamped, viz., in the County of Anglesea, 29 of ¼ gill.

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or gall.	½ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. District, City, Town, &c.
																															WORCESTER:—
																															10 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	–	1	3	8	15	8	2	–	37	–	–	1	12	27	3	–	–	–	–	43	–	–	–	–	Bromsgrove.
–	–	–	–	–	–	1	–	1	–	193	258	292	140	107	–	992	5	4	2	69	95	88	–	–	–	–	263	–	–	–	–	Dudley, Borough.
–	–	–	–	–	–	–	–	–	–	22	27	33	14	16	–	112	1	–	2	5	6	10	–	–	–	–	24	–	–	–	–	Halesowen.
–	–	–	–	–	–	–	–	–	–	2	7	8	2	2	–	21	–	–	1	3	3	3	–	–	–	–	10	–	–	–	–	Northfield.
–	–	–	–	–	–	–	–	–	1	2	2	1	1	1	–	8	2	–	6	6	–	–	–	–	–	–	14	–	–	–	–	Pershore.
–	–	–	–	–	–	–	–	–	1	8	17	26	24	14	–	90	3	1	3	8	10	10	–	–	–	–	35	12	–	–	–	Stourbridge.
–	–	–	–	–	–	–	–	–	–	1	5	6	–	–	–	12	1	1	2	3	3	–	–	–	–	–	10	6	–	–	–	Stourport.
–	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	3	–	1	1	2	–	2	–	–	–	–	6	–	–	–	–	Hundred House. Tenbury.
–	–	–	–	–	–	–	1	–	4	6	5	3	2	5	–	26	2	–	1	2	2	2	–	–	–	–	9	2	–	–	–	Upton.
–	–	–	–	–	–	–	–	–	1	41	59	21	8	5	–	135	1	–	–	–	1	1	–	–	–	–	3	–	–	–	–	Worcester.
No record kept.																															Bewdley, Borough.
–	–	–	–	–	–	–	–	–	–	2	10	6	–	–	–	18	–	–	–	–	2	2	–	–	–	–	4	23	–	–	–	Droitwich, Borough.
Transferred to County.																															Dudley, Parish and Borough.
Transferred to County.																															Evesham, Borough.
–	–	–	–	–	–	–	6	4	8	98	97	114	98	94	104	–	623	16	18	34	28	29	54	–	–	–	–	179	24	–	–	–	Kidderminster, Boro'.
Transferred to County.																															Stourbridge, Town.
–	–	–	–	–	–	–	5	5	3	32	41	27	14	8	–	135	8	–	8	28	29	9	–	–	–	–	82	7	–	–	–	Worcester, City.
No return made.																															{ Cutsdam, Manor.
																															{ Evesham, Manor.
–	–	–	–	–	–	7	10	14	109	410	554	537	307	264	–	2,212	39	25	61	166	207	184	–	–	–	–	682	74	–	–	–	{ Total for County of Worcester.
																															YORKSHIRE:—
–	–	–	–	–	–	1	5	17	20	194	319	344	205	140	–	1,245	–	–	17	24	17	9	–	–	–	–	67	67	–	–	–	East Riding.
–	–	–	–	–	–	–	3	12	43	164	237	266	133	45	–	903	3	11	22	29	35	19	–	–	–	–	119	169	–	–	–	North Riding.
No return made.																															West Riding.
Not stated.																															Bradford, Borough.
–	–	–	–	–	–	–	–	–	2	3	10	8	11	6	–	41	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Beverley, Borough.
–	–	–	–	–	–	–	1	1	1	1	1	1	1	1	–	9	1	1	1	1	1	1	–	–	–	–	6	1	–	–	1	Doncaster, Borough.
Transferred to East Riding of County.																															Hedon, Borough.
																															Hull. See Kingston-on-Hull.
–	–	–	–	–	–	–	1	9	41	38	171	398	268	96	46	–	1,068	3	–	–	–	–	–	–	–	–	–	3	341	–	1	–	Kingston-on-Hull, Borough.
See p. 144.																															Leeds, Borough.
No record kept.																															Middlesboro', Boro'.
–	–	–	–	–	–	–	–	–	–	7	24	25	8	3	–	67	9	–	–	–	2	1	–	–	–	–	12	–	–	–	–	Pontefract, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Richmond, Borough.
–	–	–	–	–	–	–	1	2	–	1	3	2	6	1	–	16	1	6	6	11	–	–	–	–	–	–	24	–	–	–	–	Ripon, City, or Boro' and Liberty.
See end of Abstract.																															Scarborough, Boro'.
–	–	–	–	14	232	7	12	19	10	296	1,139	940	167	203	–	2,793	12	1	4	13	26	26	–	–	–	–	82	284	5,978	6	5,984	Sheffield, Borough.
No return made.																															Sheffield, Town.
–	–	–	–	–	–	–	3	11	4	135	105	165	17	12	–	452	1	7	22	20	3	1	–	–	–	–	54	49	–	1	1	York, City.
Transferred to County (East Riding).																															Burlington, Manor.
Transferred to Borough of Sheffield.																															Eccleshall-Bierlow, Manor.
No return made.																															Honley, &c., Manor.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Leeds, Kirkgate, &c., Manors.
No return made.																															Wakefield, Manor, and Town of Halifax.
																															Halifax. See Wakefield.
–	–	–	–	14	232	10	34	105	117	972	2,236	2,019	644	457	–	6,594	30	26	72	98	84	57	–	–	–	–	367	911	5,978	8	5,986	{ Total for County of York.
WALES.																															
																															ANGLESEA:—
–	–	–	–	–	–	–	–	7	5	95	121	131	87	74	–	520‡	3	3	1	–	–	–	–	–	–	–	7	130	–	–	–	County.
–	–	–	–	–	–	–	–	7	5	95	121	131	87	74	–	520	3	3	1	–	–	–	–	–	–	–	7	130	–	–	–	{ Total for County of Anglesea.
																															BRECON:—
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Brecon, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	{ Total for County of Brecon.
																															CARMARTHEN:—
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	County.
No return made.																															Carmarthen, County of Borough.
–	–	–	–	–	–	–	–	–	–	4	10	8	20	–	–	42	3	5	8	1	–	–	–	–	–	–	17	1	–	–	–	Kidwelly, Borough.
Transferred to County.																															Llanelly, Parish.
–	–	–	–	–	–	–	–	–	–	4	10	8	20	–	–	42	3	5	8	1	–	–	–	–	–	–	17	1	–	–	–	{ Total for County of Carmarthen.

avoirdupois, for which there is no specific legal Standard.
each, 1 of 50 lbs., 1 of 40 lbs., 22 of 30 lbs., 27 of 20 lbs., 12 of 15 lbs., 3 of 12 lbs., 38 of 10 lbs., 5 of 8 lbs., 10 of 6 lbs., 29 of 5 lbs., 33 of 3 lbs., for which there are no specific legal

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights, stamped. 56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	Troy 1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
CARDIGAN:—																													
County	100	66	88	96	98	96	83	95	96	89	89	88	87	–	–	–	–	1,171	–	–	–	–	–	–	–	–	–	–	–
Total for County of Cardigan	100	66	88	96	98	96	83	95	96	89	89	88	87	–	–	–	–	1,171	–	–	–	–	–	–	–	–	–	–	–
CARNARVON:—																													
County	830	403	614	839	927	1,030	1,536	1,351	1,219	994	889	786	632	–	–	–	–	12,050	–	–	–	–	–	–	–	–	–	–	–
Pwllheli, Borough	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total for County of Carnarvon	830	403	614	839	927	1,030	1,536	1,351	1,219	994	889	786	632	–	–	–	–	12,050	–	–	–	–	–	–	–	–	–	–	–
DENBIGH:—																													
County	405	209	350	373	570	677	1,041	909	780	736	658	568	405	–	–	–	–	7,681	–	–	–	–	–	–	–	–	–	–	–
Denbigh, Borough	Transferred to County.																												
Total for County of Denbigh	405	209	350	373	570	677	1,041	909	780	736	658	568	405	–	–	–	–	7,681	–	–	–	–	–	–	–	–	–	–	–
FLINT:—																													
3 Subdivisions of the County, viz.:—																													
Holywell	222	97	137	183	230	282	465	396	374	266	194	176	139	1	–	–	–	3,162	–	–	–	–	–	–	–	–	–	–	–
Mold	76	43	84	121	228	281	421	392	305	258	209	144	122	–	–	–	–	2,684	–	–	–	–	–	–	–	–	–	–	–
Overton	155	76	107	109	110	115	139	119	93	79	75	73	55	–	–	–	–	1,305	–	–	–	–	–	–	–	–	–	–	–
Flint, Borough	No return made.																												
Total for County of Flint	453	216	328	413	568	678	1,025	907	772	603	478	393	316	1	–	–	– *	7,151	–	–	–	–	–	–	–	–	–	–	–
GLAMORGAN:—																													
4 Subdivisions of the County, viz.:—																													
Merthyr	431	152	205	271	311	352	457	317	277	244	154	154	154	–	–	–	–	3,479	–	–	–	–	–	–	–	–	–	–	–
Newbridge	259	95	74	226	258	299	383	303	300	259	242	238	236	–	–	–	–	3,172	–	–	–	–	–	–	–	–	–	–	–
Ogmore	12	7	18	19	21	25	42	41	42	38	31	28	26	–	–	–	–	350	–	–	–	–	–	–	–	–	–	–	–
Swansea	248	232	370	396	447	483	588	362	357	357	303	303	303	–	–	–	–	4,749	–	–	–	–	–	–	–	–	–	–	–
Cardiff, Borough Swansea, Borough	54	33	55	81	105	115	106	102	88	72	70	63	21	Transferred to County. –	–	–	–	965	–	–	–	–	–	–	–	–	–	–	–
Total for County of Glamorgan	1,004	519	722	993	1,142	1,274	1,576	1,125	1,064	970	800	786	740	–	–	–	–	12,715	–	–	–	–	–	–	–	–	–	–	–
MERIONETH:—																													
County	152	79	82	137	155	188	306	265	227	197	163	182	106	–	–	–	–	2,239	–	–	–	–	–	–	–	–	–	–	–
Total for County of Merioneth	152	79	82	137	155	188	306	265	227	197	163	182	106	–	–	–	–	2,239	–	–	–	–	–	–	–	–	–	–	–
MONTGOMERY:—																													
County	285	110	121	151	138	280	318	252	192	144	84	73	43	–	–	–	–	2,191	–	–	–	–	–	–	–	–	–	–	–
Total for County of Montgomery	285	110	121	151	138	280	318	252	192	144	84	73	43	–	–	–	–	2,191	–	–	–	–	–	–	–	–	–	–	–
PEMBROKE:—																													
County	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Haverfordwest, Town and County of.	59	30	30	35	35	44	47	42	20	23	20	19	22	19	19	19	–	483	–	–	–	–	–	–	–	–	–	–	–
Tenby, Borough	No record kept.																												
Total for County of Pembroke	59	30	30	35	35	44	47	42	20	23	20	19	22	19	19	19	–	483	–	–	–	–	–	–	–	–	–	–	–
RADNOR:—																													
County	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rhayader, Borough	No return made.																												
Total for County of Radnor	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SCOTLAND																													
ABERDEEN:—																													
3 Districts of the County, viz.:—																													
Aberdeen	259	195	312	317	344	404	487	482	388	313	251	305	229	–	–	–	–	4,286	–	–	–	–	–	–	–	–	–	–	–
Peterhead	295	219	250	284	320	350	442	386	325	283	273	245	160	–	–	–	–	3,832	–	–	–	–	–	–	–	–	–	–	–
Inverary	358	197	245	275	288	316	366	357	300	226	220	167	89	–	–	–	–	3,404	–	–	–	–	–	–	–	–	–	–	–
Aberdeen, Royal Burgh	560	155	192	215	244	258	312	267	212	90	110	110	69	51	36	–	–	2,881	–	–	–	–	–	–	–	–	–	–	–
Total for County of Aberdeen	1,472	766	999	1,091	1,196	1,328	1,607	1,492	1,225	912	854	827	547	51	36	–	–	14,403	–	–	–	–	–	–	–	–	–	–	–
ARGYLL:—																													
County	24	21	44	59	60	66	62	58	67	41	42	39	21	1	–	–	–	605	–	–	–	–	–	–	–	–	–	–	–
Campbelltown, Royal Burgh.	No record kept.																												
Oban, Burgh	No return.																												
Total for County of Argyll	24	21	44	59	60	66	62	58	67	41	42	39	21	1	–	–	–	605	–	–	–	–	–	–	–	–	–	–	–

* The following measures of other denominations than those mentioned in the above Abstract have been also stamped, viz., in the County

† The following measures of a denomination not mentioned in the Abstract, and for which there is no specific legal Standard, have been

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy.					Bullion Weight.	Measures of Capacity.																						Measures of Length.	Gas Measures.			County. — District, City, Town, &c.
						Liquid Measures.											Measures for Dry Goods.															
6 grs.	3 grs.	2 grs.	1 gr.	Total.		4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Yards.	Gas Meters.	Gas Holders.	Total.	
–	–	–	–	–	–	–	–	8	7	9	8	7	7	6	–	52	14	12	8	–	–	–	–	–	–	–	34	28	–	–	–	CARDIGAN:— County.
–	–	–	–	–	–	–	–	8	7	9	8	7	7	6	–	52	14	12	8	–	–	–	–	–	–	–	34	28	–	–	–	Total for County of Cardigan.
–	–	–	–	–	–	11	5	15	6	26	37	34	26	25	–	185	19	–	–	–	–	–	–	–	–	–	19	115	–	–	–	CARNARVON:— County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Pwllheli, Borough.
–	–	–	–	–	–	11	5	15	6	26	37	34	26	25	–	185	19	–	–	–	–	–	–	–	–	–	19	115	–	–	–	Total for County of Carnarvon.
–	–	–	–	–	–	–	–	–	3	175	341	243	63	28	–	853	–	4	–	–	–	–	–	–	–	–	4	77	–	–	–	DENBIGH:— County.
															Transferred to County.																	Denbigh, Borough.
–	–	–	–	–	–	–	–	–	3	175	341	243	63	28	–	853	–	4	–	–	–	–	–	–	–	–	4	77	–	–	–	Total for County of Denbigh.
–	–	–	–	–	–	–	–	1	–	32	50	97	39	40	–	259†	6	–	–	–	–	–	–	–	–	–	6	24	–	–	–	FLINT:— 3 Subdivisions of the County, viz.:—
–	–	–	–	–	–	–	–	–	–	34	98	106	59	–	–	297	–	–	–	–	–	–	–	–	–	–	–	15	–	–	–	Holywell.
–	–	–	–	–	–	–	–	–	–	22	23	22	17	14	–	98	–	5	2	1	1	–	–	–	–	–	9	8	–	–	–	Mold.
															No return made.																	Overton. Flint, Borough.
–	–	–	–	–	–	–	–	1	–	88	171	225	115	54	–	654	6	5	2	1	1	–	–	–	–	–	15	47	–	–	–	Total for County of Flint.
–	–	–	–	–	–	–	–	2	21	350	881	42	16	21	–	1,333	–	–	–	–	–	–	–	–	–	–	–	30	–	–	–	GLAMORGAN:— 4 Subdivisions of the County, viz.:—
–	–	–	–	–	–	2	3	1	15	49	60	56	25	–	–	211	1	1	3	2	2	1	–	–	–	–	10	14	–	–	–	Merthyr.
–	–	–	–	–	–	–	1	4	68	171	–	–	–	–	–	244	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Newbridge.
–	–	–	–	–	–	–	–	–	3	4	4	5	5	–	–	21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ogmore.
															Transferred to County.																	Swansea. Cardiff, Borough.
–	–	–	–	–	–	–	–	2	–	1	1	1	1	–	–	6	1	–	1	–	–	–	–	–	–	–	2	1	–	–	–	Swansea, Borough.
–	–	–	–	–	–	–	2	8	26	437	1,106	107	78	51	–	1,815	2	1	4	2	2	1	–	–	–	–	12	45	–	–	–	Total for County of Glamorgan.
–	–	–	–	–	–	–	–	–	–	10	14	35	9	8	–	76	4	12	6	7	–	–	–	–	–	–	29	52	–	–	–	MERIONETH:— County.
–	–	–	–	–	–	–	–	–	–	10	14	35	9	8	–	76	4	12	6	7	–	–	–	–	–	–	29	52	–	–	–	Total for County of Merioneth.
–	–	–	–	–	–	–	–	–	–	28	30	24	2	2	–	86	3	1	–	–	–	–	–	–	–	–	4	10	–	–	–	MONTGOMERY:— County.
–	–	–	–	–	–	–	–	–	–	28	30	24	2	2	–	86	3	1	–	–	–	–	–	–	–	–	4	10	–	–	–	Total for County of Montgomery.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	PEMBROKE:— County.
–	–	–	–	–	–	–	–	–	–	1	2	1	1	1	–	6	2	–	–	–	–	–	–	–	–	–	2	–	–	–	–	Haverfordwest, Town and County of.
															No record kept.																	Tenby, Borough.
–	–	–	–	–	–	–	–	–	–	1	2	1	1	1	–	6	2	–	–	–	–	–	–	–	–	–	2	–	–	–	–	Total for County of Pembroke.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	RADNOR:— County.
															No return made.																	Rhayader, Borough.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Radnor.

SCOTLAND.

–	–	–	–	–	–	–	–	11	35	10	42	25	37	17	–	177	21	–	–	–	–	–	–	–	–	–	21	3	–	–	–	ABERDEEN:— 3 Districts of the County, viz.:—
–	–	–	–	–	–	–	–	4	18	11	21	19	16	4	–	93	22	–	1	–	–	–	–	–	–	–	23	31	–	–	–	Aberdeen.
–	–	–	–	–	–	2	2	12	22	15	39	51	72	23	–	238	43	–	–	–	–	–	–	–	–	–	43	5	–	–	–	Peterhead.
–	–	–	–	–	–	2	3	46	93	54	224	221	275	95	–	1,013*	45	–	47	42	43	19	–	–	–	–	196	30	–	–	–	Inverary.
–	–	–	–	–	–	4	5	73	168	90	326	316	400	139	–	1,521	131	–	48	42	43	19	–	–	–	–	283	69	–	–	–	Aberdeen, Royal Burgh.
																																Total for County of Aberdeen.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	ARGYLL:— County.
															No record kept.																	Campbelltown, Royal Burgh.
															No return.																	Oban, Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Argyll.

of Aberdeen, five 5-gallons, and in the Royal Burgh of Aberdeen, five 5-gallons, for which there are no legal specific Standards.
stamped, viz., 34 ¼-gills,

Appendix III.—*continued*.—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy									
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
AYR:—																											
County	543	279	699	1,044	958	1,311	1,502	1,563	1,299	781	819	741	559	–	–	–	12,098	–	–	–	–	–	–	–	–	–	–
Ayr, Royal Burgh	No return made.																										
Irvine, Royal Burgh	21	15	34	34	31	48	55	49	69	22	21	37	32	38	6	–	512	–	–	–	–	–	–	–	–	–	–
Kilmarnock, Burgh	261	71	129	139	269	245	225	255	240	212	190	215	204	–	–	–	2,655	–	–	–	–	–	–	–	–	–	–
Total for County of Ayr	825	365	862	1,217	1,258	1,604	1,782	1,867	1,608	1,015	1,030	993	795	38	6	–	15,265	–	–	–	–	–	–	–	–	–	–
BANFF:—																											
Banff, Royal Burgh	28	9	13	19	14	17	39	23	15	45	21	27	27	2	2	–	301	–	–	–	–	–	–	–	–	–	–
Total for County of Banff	28	9	13	19	14	17	39	23	15	45	21	27	27	2	2	–	301	–	–	–	–	–	–	–	–	–	–
BERWICK:—																											
County	47	12	23	39	38	56	84	100	58	49	48	41	42	–	–	–	637	–	–	–	–	–	–	–	–	–	–
Lander, Royal Burgh	No record kept.																										
Total for County of Berwick	47	12	23	39	38	56	84	100	58	49	48	41	42	–	–	–	637	–	–	–	–	–	–	–	–	–	–
BUTE:—																											
County	32	29	42	41	41	43	52	45	31	24	26	28	19	10	–	–	463	–	–	–	–	–	–	–	–	–	–
Rothsay, Royal Burgh	35	5	12	33	40	51	56	51	42	22	23	18	10	6	–	–	404	–	–	–	–	–	–	–	–	–	–
Total for County of Bute	67	34	54	74	81	94	108	96	73	46	49	46	29	16	–	–	867	–	–	–	–	–	–	–	–	–	–
CAITHNESS:																											
County	No return.																										
Wick, Royal Burgh	No Standards in use.																										
Total for County of Caithness	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CLACKMANNAN:—																											
County	No return made.																										
Total for County of Clackmannan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CROMARTY:—																											
County	16	17	22	24	31	26	29	22	27	33	44	47	25	13	–	–	376	–	–	–	–	–	–	–	–	–	–
Total for County of Cromarty	16	17	22	24	31	26	29	22	27	33	44	47	25	13	–	–	376	–	–	–	–	–	–	–	–	–	–
DUMBARTON:—																											
County:—	376	138	276	356	353	313	487	413	534	249	233	259	149	50	5	–	4,191	–	–	–	–	–	–	–	–	–	–
Dumbarton, Royal Burgh.	74	38	64	75	78	97	122	110	88	72	58	60	35	7	–	–	978	–	–	–	–	–	–	–	–	–	–
Total for County of Dumbarton	450	176	340	431	431	410	609	523	622	321	291	319	184	57	5	–	5,169	–	–	–	–	–	–	–	–	–	–
DUMFRIES:—																											
County	232	103	203	201	92	197	275	223	193	174	167	167	1	–	–	–	2,228*	–	–	–	–	–	–	–	–	–	–
Annan, Royal Burgh	No return made.																										
Dumfries, Royal Burgh.	397	130	242	255	215	299	431	342	303	250	249	243	23	–	–	–	3,379†	–	–	–	–	–	–	–	–	–	–
Sanquhar, Royal Burgh.	No return made.																										
Total for County of Dumfries	629	233	445	456	307	496	706	565	496	424	416	410	24	–	–	–	5,607	–	–	–	–	–	–	–	–	–	–
EDINBURGH:—																											
County	726	198	328	509	515	634	744	658	565	469	411	351	228	3	–	–	6,339	–	–	–	–	–	–	–	–	–	–
Edinburgh, City	1,294	428	611	971	1,005	1,332	1,906	1,916	1,708	1574	1312	1151	970	32	9	–	16,219	–	–	–	–	–	–	–	–	–	–
Leith, Burgh	1,063	125	154	173	179	181	282	207	179	110	108	131	141	1	1	–	3,035	–	–	–	–	–	–	–	–	–	–
Total for County of Edinburgh	3,083	751	1093	1653	1,699	2,147	2,932	2,781	2,452	2153	1831	1633	1339	36	10	–	25,593	–	–	–	–	–	–	–	–	–	–
ELGIN:—																											
County	3	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	4	–	–	–	–	–	–	–	–	–	–
Elgin, Royal Burgh	28	34	38	41	63	70	106	90	36	54	30	18	12	–	–	–	620	–	–	–	–	–	–	–	–	–	–
Total for County of Elgin	31	34	38	41	64	70	106	90	36	54	30	18	12	–	–	–	624	–	–	–	–	–	–	–	–	–	–
FIFE:—																											
County	46	32	22	–	–	–	–	–	–	–	–	–	–	–	–	–	4,780	4,780	–	–	–	–	–	–	–	–	–	–
Anstruther, East, Royal Burgh.	No return made.																										
Burnt-island, Royal Burgh.	Not stated.																										
Crail, Royal Burgh	Transferred to County.																										
Cupar, Royal Burgh	Transferred to County.																										

* The following measures of other denominations than those mentioned in the above Abstract have also been stamped, viz., in the Royal Burgh of Dumfries, 87 3½-lbs. in
† The following weights of other denominations than those mentioned in the above Abstract have also been stamped, viz., in the County of Dumfries, 87 3½-lbs.,
‡ The following measures of other denominations than those mentioned in the above Abstract have also been stamped, viz., in the Burgh of Dumfries, four 5-gallons and one
Standards.

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 gallons.	2 gallons.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	¼ peck or ½ gall.	½ peck or ¼ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	County. / District, City, Town, &c.
–	–	–	–	–	–	2	4	19	33	165	155	245	284	100	–	1,007	3	–	–	–	–	–	–	–	–	3	4	–	–	–	AYR:— County.
No return made.																															Ayr, Royal Burgh.
–	–	–	–	–	–	1	4	25	13	15	10	24	52	17	–	161	11	–	–	–	–	–	–	–	–	11	–	–	–	–	Irvine, Royal Burgh.
–	–	–	–	–	–	1	4	25	13	15	10	24	52	17	–	161	11	–	–	–	–	–	–	–	–	11	–	–	–	–	Kilmarnock, Burgh.
–	–	–	–	–	–	3	8	46	48	184	171	274	341	124	–	1,199	15	–	–	–	–	–	–	–	–	15	4	–	–	–	Total for County of Ayr.
–	–	–	–	–	–	–	–	1	–	1	14	15	3	4	–	38*	9	–	2	2	1	1	–	–	–	15	–	–	–	–	BANFF:— Banff, Royal Burgh.
–	–	–	–	–	–	–	–	1	–	1	14	15	3	4	–	38	9	–	2	2	1	1	–	–	–	15	–	–	–	–	Total for County of Banff.
–	–	–	–	–	–	–	–	4	6	9	6	4	7	5	–	41	–	–	–	–	–	–	–	–	–	–	6	–	–	–	BERWICK:— County.
No record kept.																															Lander, Royal Burgh.
–	–	–	–	–	–	–	–	4	6	9	6	4	7	5	–	41	–	–	–	–	–	–	–	–	–	–	6	–	–	–	Total for County of Berwick.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	BUTE:—
–	–	–	–	–	–	–	–	3	5	2	2	1	–	–	–	13	1	–	–	–	–	–	–	–	–	1	–	–	–	–	County. Rothsay, Royal Burgh.
–	–	–	–	–	–	–	–	3	5	2	2	1	–	–	–	13	1	–	–	–	–	–	–	–	–	1	–	–	–	–	Total for County of Bute.
See end of Abstract.																															CAITHNESS:—
No Standards in use.																															County. Wick, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Caithness.
No return made.																															CLACKMANNAN:— County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Clackmannan.
–	–	–	–	–	–	–	1	6	6	13	14	16	21	11	–	88	3	–	–	–	–	–	–	–	–	3	2	–	–	–	CROMARTY:— County.
–	–	–	–	–	–	–	1	6	6	13	14	16	21	11	–	88	3	–	–	–	–	–	–	–	–	3	2	–	–	–	Total for County of Cromarty.
–	–	–	–	–	–	2	–	29	29	145	134	200	217	79	–	835	1	–	–	–	–	–	–	–	–	1	11	–	–	–	DUMBARTON:— County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Dumbarton, Royal Burgh.
–	–	–	–	–	–	2	–	29	29	145	134	200	217	79	–	835	1	–	–	–	–	–	–	–	–	1	11	–	–	–	Total for County of Dumbarton.
–	–	–	–	–	–	1	1	5	7	21	26	25	22	13	–	121	1	–	–	–	–	–	–	–	–	1	9	–	–	–	DUMFRIES:— County.
No return made.																															Annan, Royal Burgh.
–	–	–	–	–	–	2	2	26	30	96	128	175	200	85	–	744‡	23	2	1	–	7	4	–	–	–	37	29	–	–	–	Dumfries, Royal Burgh.
No return made.																															Sanquhar, Royal Burgh.
–	–	–	–	–	–	3	3	31	37	117	154	200	222	98	–	865	24	2	1	–	7	4	–	–	–	38	38	–	–	–	Total for County of Dumfries.
–	–	–	–	–	–	7	4	15	17	38	24	26	91	26	–	248	6	–	6	3	–	–	–	–	–	15	3	–	–	–	EDINBURGH:— County.
–	–	–	–	–	–	24	17	179	254	1153	1420	1877	830	608	–	6,362‡	92	1	18	95	118	66	–	–	–	390	204	33895	1	33896	Edinburgh, City.
–	–	–	–	–	–	15	22	45	34	20	36	40	55	44	–	311‡	1	–	–	–	–	–	–	–	–	1	2	–	–	–	Leith, Burgh.
–	–	–	–	–	–	46	43	239	305	1211	1480	1943	976	678	–	6,921	99	1	24	98	118	66	–	–	–	406	209	33895	1	33896	Total for County of Edinburgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	ELGIN:—
–	–	–	–	–	–	2	6	18	24	96	132	108	–	–	–	386	9	–	12	7	2	–	–	–	–	30	36	–	–	–	County. Elgin, Royal Burgh.
–	–	–	–	–	–	2	6	18	24	96	132	108	–	–	–	386	9	–	12	7	2	–	–	–	–	30	36	–	–	–	Total for County of Elgin.
No return made.																524	8	–	–	–	–	–	–	–	–	8	73	–	–	–	FIFE:— County.
Not stated.																															Anstruther, East, Royal Burgh.
Transferred to County.																															Burnt-island, Royal Burgh.
Transferred to County.																															Crail, Royal Burgh. Cupar, Royal Burgh.

the County of Banff, nine 20 gallons, five 10 gallons, one 5 gallon, for which measures there are no legal specific Standards.
for which there is no specific legal Standard.
3-gallon, in the City of Edinburgh, 22 5-gallons, and three 3-gallons, and in the Burgh of Leith, 15 5-gallons and four 3-gallons, for which measures there are no specific lega

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. — District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total. Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
Dunfermline, Royal Burgh.	11	7	25	–	–	–	–	–	–	–	–	–	–	–	–	–	482	525	–	–	–	–	–	–	–	–	–	–	–
Inverkeithing, Royal Burgh.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kinghorn, Royal Burgh.	Transferred to County.																												
Kirkcaldy, Royal Burgh.	62	42	61	61	61	28	42	68	52	52	56	56	60	30	25	20	–	776	–	–	–	–	–	–	–	–	–	–	–
Pittenweem, Royal Burgh.	No record kept.																												
St. Andrews, City and Royal Burgh.	–	1	1	1	7	13	13	13	19	14	55	66	42	–	–	–	–	245	–	–	–	–	–	–	–	–	–	–	–
Total for County of Fife - -	119	82	109	62	68	41	55	81	71	66	111	122	102	30	25	20	5,162	6,326	–	–	–	–	–	–	–	–	–	–	–
FORFAR:—																													
County - - -	50	84	111	170	141	172	218	202	158	128	112	95	43	8	1	–	–	1,693	–	–	–	–	–	–	–	–	–	–	–
Arbroath, Royal Burgh.	252	65	85	100	99	119	124	87	79	55	63	60	33	9	11	14	–	1,255	–	–	–	–	–	–	–	–	–	–	–
Brechin, Royal Burgh	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dundee, Royal Burgh	799	230	263	333	327	394	748	612	606	371	328	339	333	256	248	–	–	6,187	–	–	–	–	–	–	–	–	–	–	–
Forfar, Royal Burgh	38	60	73	99	90	122	166	173	130	124	116	82	39	6	6	–	–	1,324	–	–	–	–	–	–	–	–	–	–	–
Montrose, Royal Burgh.	No record kept.																												
Total for County of Forfar - -	1,139	439	532	702	657	807	1,256	1,074	973	678	619	576	448	279	266	14	–	10,459	–	–	–	–	–	–	–	–	–	–	–
HADDINGTON:—																													
County - - -	15	6	6	12	10	9	10	6	3	1	–	–	–	–	–	–	–	78	–	–	–	–	–	–	–	–	–	–	–
Berwick, North, Royal Burgh.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dunbar, Royal Burgh	10	8	8	14	12	18	24	30	20	30	32	30	24	12	–	–	–	272	–	–	–	–	–	–	–	–	–	–	–
Total for County of Haddington -	25	14	14	26	22	27	34	36	23	31	32	30	24	12	–	–	–	350	–	–	–	–	–	–	–	–	–	–	–
INVERNESS:—																													
County - - -	No record kept.																												
Inverness, Royal Burgh.	No record kept.																												
Total for County of Inverness -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KINCARDINE:—																													
County - - -	19	23	33	61	71	104	117	107	79	54	39	13	4	2	–	–	–	726*	–	–	–	–	–	–	–	–	–	–	–
Total for County of Kincardine -	19	23	33	61	71	104	117	107	79	54	39	13	4	2	–	–	–	726	–	–	–	–	–	–	–	–	–	–	–
KINROSS:—																													
County - - -	No record kept.																												
Total for County of Kinross -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KIRCUDBRIGHT:—																													
County - - -	463	246	411	431	310	424	524	382	362	382	302	254	181	160	80	–	–	4,912*	–	–	–	–	–	–	–	–	–	–	–
Kircudbright, Burgh	Transferred to County.																												
Total for County of Kircudbright	463	246	411	431	310	424	524	382	362	382	302	254	181	160	80	–	–	4,912	–	–	–	–	–	–	–	–	–	–	–
LANARK:—																													
Divided into 3 Wards:—																													
Upper Ward - -	363	214	333	347	318	385	442	461	287	233	227	191	143	65	27	2	–	4,038	–	–	–	–	–	–	–	–	–	–	–
Middle Ward, divided into 4 Districts:—																													
Airdrie - -	692	130	272	359	336	404	485	473	310	217	194	181	130	27	10	5	–	4,225	–	–	–	–	–	–	–	–	–	–	–
Coatbridge - -	778	128	261	369	325	430	537	489	473	320	322	272	269	18	11	–	–	5,002	–	–	–	–	–	–	–	–	–	–	–
Hamilton - -	623	197	339	409	371	171	666	538	586	347	393	331	308	109	21	–	–	5,409	–	–	–	–	–	–	–	–	–	–	–
Wishaw - -	210	81	114	170	143	186	259	301	271	132	155	150	111	27	13	–	–	2,323	–	–	–	–	–	–	–	–	–	–	–
Lower Ward - -	157	42	110	150	146	175	204	204	176	118	101	91	55	9	2	1	–	1,741	–	–	–	–	–	–	–	–	–	–	–
Airdrie, Burgh - -	40	39	83	125	113	139	157	153	159	81	86	87	66	18	13	5	–	1,364	–	–	–	–	–	–	–	–	–	–	–
Calton, Burgh - -	Included in City of Glasgow.																												
Glasgow, City, in 3 Districts and 2 Burghs:—																													
Central District -	3,607	746	1263	1839	2,236	2,429	3,465	3,716	3,367	2131	2287	1857	1715	974	563	91	–	32,286*	4	6	6	6	7	8	8	8	8	8	8
Eastern District	336	144	447	638	648	668	772	800	850	748	728	756	580	466	352	–	–	8,933	–	–	–	–	–	–	–	–	–	–	–
Western District	5,315	727	1054	1559	1,680	1,816	2,138	2,032	1,776	721	689	707	567	279	135	–	–	21,195	–	–	–	–	–	–	–	–	–	–	–
Lanark, Royal Burgh	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Patrick, Burgh - -	Transferred to County.																												
Total for County of Lanark - -	12,121	2,448	4,276	5,965	6,316	6,803	9,125	9,167	8,255	5,048	5,182	4,623	3,944	1,992	1,147	104	–	86,516	4	6	6	6	7	8	8	8	8	8	8
LINLITHGOW:—																													
County - - -	No return made.																												
Total for County of Linlithgow -	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

* The following weights of other denominations than those mentioned in the above Abstract have also been stamped, viz., in the County of Kircudbright, 161 3½-lbs. avoir-Standards.

† The following measures of other denominations than those mentioned in the above Abstracts have also been stamped, viz., in the County of Kincardine, one 5-gallon, in

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy. 6 grs.	Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denomination of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denomination of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holdeys.	Total.	County. District, City, Town, &c.
–	–	–	–	–	–	5	2	4	26	–	–	–	–	–	231	268	1	–	5	2	–	–	–	–	–	–	8	–	–	–	–	Dunfermline, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Inverkeithing, Royal Burgh.
Transferred to County.																															Kinghorn, Royal Burgh.
–	–	–	–	–	–	3	7	11	10	29	18	27	32	36	–	173	7	–	3	8	8	–	–	–	–	–	26	1	–	–	–	Kirkcaldy, Royal Burgh.
No record kept.																															Pittenweem, Royal Burgh.
–	–	–	–	–	–	–	–	–	23	28	11	8	–	–	–	70	1	–	–	–	1	1	–	–	–	–	3	12	–	–	–	St. Andrews, City and Royal Burgh.
–	–	–	–	–	–	8	9	15	59	57	29	35	32	36	755	1,035	17	–	8	10	9	1	–	–	–	–	45	86	–	–	–	Total for County of Fife.
–	–	–	–	–	–	–	–	1	2	–	1	2	1	–	–	7	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	FORFAR:— County.
–	–	–	–	–	–	–	3	4	8	15	15	20	17	15	–	97	2	–	–	–	2	2	–	–	–	–	6	3	–	–	–	Arbroath, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Brechin, Royal Burgh.
–	–	–	–	–	–	29	7	40	17	77	111	79	12	12	–	384	13	–	–	–	–	–	–	–	–	–	13	67	–	2	2	Dundee, Royal Burgh.
–	–	–	–	–	–	2	–	12	13	32	40	89	91	48	–	327	2	–	–	–	–	–	–	–	–	–	2	6	–	–	–	Forfar, Royal Burgh.
No record kept.																															Montrose, Royal Burgh.
–	–	–	–	–	–	31	10	57	40	124	167	190	121	75	–	815	18	–	–	–	2	2	–	–	–	–	22	76	–	2	2	Total for County of Forfar.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	HADDINGTON:— County.
–	–	–	–	–	–	–	–	1	1	1	1	1	1	–	7	1	1	1	1	–	–	–	–	–	4	1	–	–	–	Berwick, North, Royal Burgh.	
–	–	–	–	–	–	–	–	2	–	18	20	12	6	–	–	58	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Dunbar, Royal Burgh.
–	–	–	–	–	–	–	–	3	1	19	21	13	7	1	–	65	1	1	1	1	–	–	–	–	–	–	4	1	–	–	–	Total for County of Haddington.
No record kept.																															INVERNESS: County.
No record kept.																															Inverness, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Inverness.
–	–	–	–	–	–	–	–	2	2	1	29	24	3	1	–	62†	8	–	–	1	1	1	–	–	–	–	11	4	–	–	–	KINCARDINE:— County.
–	–	–	–	–	–	–	–	2	2	1	29	24	3	1	–	62	8	–	–	1	1	1	–	–	–	–	11	4	–	–	–	Total for County of Kincardine.
No record kept.																															KINROSS:— County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Kinross.
–	–	–	–	–	–	1	–	31	26	45	–	–	–	–	404	507	1	–	–	–	–	–	–	–	–	–	1	28	–	–	–	KIRCUDBRIGHT:— County.
Transferred to County.																															Kircudbright, Burgh.
–	–	–	–	–	–	1	–	31	26	45	–	–	–	–	404	507	1	–	–	–	–	–	–	–	–	–	1	28	–	–	–	Total for County of Kircudbright.
–	–	–	–	–	–	–	4	14	59	88	87	113	74	31	–	470	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	LANARK:— Divided into 3 Wards. Upper Ward.
–	–	–	–	–	–	3	6	15	25	189	156	222	236	72	–	924	4	–	–	–	–	–	–	–	–	–	4	–	–	–	–	Middle Ward, divided into 4 Districts:— Airdrie.
–	–	–	–	–	–	5	4	35	43	483	809	524	514	164	–	2,581	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Coatbridge.
–	–	–	–	–	–	1	–	15	38	353	187	236	225	58	–	1,113	14	–	–	–	–	–	–	–	–	–	14	13	–	–	–	Hamilton.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Wishaw.
–	–	–	–	–	–	2	1	3	3	11	14	14	13	10	–	71	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Lower Ward.
–	–	–	–	–	–	4	19	4	45	254	157	31	90	43	–	648	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Airdrie, Burgh.
Included in City of Glasgow.																															Calton, Burgh.
8	8	8	8	109	–	104	68	286	406	306	157	70	142	53	–	1,594†	37	–	1	6	–	–	–	–	–	–	44	381	–	–	–	Glasgow, City, in 3 Districts and 2 Burghs:— Central District.
–	–	–	–	–	–	13	14	19	25	172	198	225	256	162	–	1,084	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Eastern District.
–	–	–	–	–	–	11	22	55	56	190	254	452	705	599	–	2,344†	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Western District.
Transferred to County.																															Lanark, Royal Burgh.
8	8	8	8	109	–	143	138	446	701	2,046	2,019	1,887	2255	1194	–	10,829	55	–	1	6	–	–	–	–	–	–	62	395	–	–	–	Patrick, Burgh.
No return made.																															Total for County of Lanark.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	LINLITHGOW:— County.
																																Total for County of Linlithgow.

dupois, in the County of Kincardine, one 3¼-lbs., in the City of Glasgow, four 112-lbs. avoirdupois, one 60-lbs., and one 40-lbs., for which weights there are no specific legal the City of Glasgow, one 10-gallon, one 6-gallon, 41 5-gallon, and 44 3-gallon, for which measures there are no specific legal Standards.

Appendix III.—*continued.*—Abstract D. of Returns from the Local Inspectors of Weights

County. District, City, Town, &c.	Avoirdupois Weights, stamped.																	Troy										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.
NAIRN:—																												
Burgh	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total for County of Nairn	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ORKNEY:—																												
County	127	92	133	155	126	139	179	133	126	77	72	84	49	–	–	–	1,492	–	–	–	–	–	–	–	–	–	–	–
Total for County of Orkney	127	92	133	155	126	139	179	133	126	77	72	84	49	–	–	–	1,492	–	–	–	–	–	–	–	–	–	–	–
PEEBLES:—																												
County	23	8	13	23	24	21	26	23	16	14	17	13	9	–	–	–	230	–	–	–	–	–	–	–	–	–	–	–
Peebles, Royal Burgh	–	1	–	3	2	5	6	6	1	4	6	–	–	6	–	–	40	–	–	–	–	–	–	–	–	–	–	–
Total for County of Peebles	23	9	13	26	26	26	32	29	17	18	23	13	9	6	–	–	270	–	–	–	–	–	–	–	–	–	–	–
PERTH:—																												
County	973	1015	1304	1299	1,197	1,411	1,873	1,532	1,134	966	908	839	507	23	29	35	15,045	–	–	–	–	–	–	–	–	–	–	–
Culross, Royal Burgh	Not stated.																											
Perth, City or Burgh	172	112	154	103	164	205	260	245	195	154	148	115	70	8	3	–	2,108	–	–	–	–	–	–	–	–	–	–	–
Total for County of Perth	1,145	1127	1458	1402	1,361	1,616	2,133	1,777	1,329	1,120	1,056	954	577	31	32	35	17,153	–	–	–	–	–	–	–	–	–	–	–
RENFREW:—																												
County	777	278	475	–	–	–	–	–	–	–	–	–	–	–	–	–	5,591	7,121	–	–	–	–	–	–	–	–	–	–
Greenock, Burgh	No inspection until 1867.																											
Paisley, Burgh	483	114	239	268	203	380	489	362	405	212	197	318	132	27	–	–	–	3,829	–	–	–	–	–	–	–	–	–	–
Pollockshaws, Burgh	No Standards in use.																											
Renfrew, Royal Burgh	7	6	17	20	18	27	28	31	23	12	7	4	–	–	–	–	–	200	–	–	–	–	–	–	–	–	–	–
Total for County of Renfrew	1,267	398	731	288	221	407	517	393	428	224	204	322	132	27	–	–	5,591	11,150	–	–	–	–	–	–	–	–	–	–
ROSS:—																												
County	236	265	335	383	379	429	545	514	388	348	324	319	230	28	8	3	–	4,734	–	–	–	–	–	–	–	–	–	–
Tain, Royal Burgh	52	68	82	97	101	113	129	132	103	92	80	80	59	6	–	–	–	1,194	–	–	–	–	–	–	–	–	–	–
Total for County of Ross	288	333	417	480	480	542	674	646	491	440	404	399	289	34	8	3	–	5,928	–	–	–	–	–	–	–	–	–	–
ROXBURGH:																												
County	221	123	218	248	149	227	400	312	284	233	212	200	135	7	–	–	–	2,974	–	–	–	–	–	–	–	–	–	–
Total for County of Roxburgh	221	123	218	248	149	227	400	312	284	238	212	200	135	7	–	–	–	2,974	–	–	–	–	–	–	–	–	–	–
SELKIRK:—																												
County and Royal Burgh.	38	22	26	–	–	–	–	–	–	–	–	–	–	–	–	–	473	559	–	–	–	–	–	–	–	–	–	–
Total for County of Selkirk	38	22	26	–	–	–	–	–	–	–	–	–	–	–	–	–	473	559	–	–	–	–	–	–	–	–	–	–
STIRLING:—																												
County	76	38	80	107	102	130	135	108	74	40	38	46	50	20	12	–	–	1,056	–	–	–	–	–	–	–	–	–	–
Falkirk, Parliamentary Burgh	101	23	34	72	63	95	83	76	78	47	38	148	153	–	1	–	–	1,017	–	–	–	–	–	–	–	–	–	–
Stirling, Royal Burgh	26	20	26	27	37	39	42	35	21	10	10	10	4	4	–	–	–	311	–	–	–	–	–	–	–	–	–	–
Total for County of Stirling	203	86	140	206	202	264	260	219	173	97	86	204	207	24	13	–	–	2,384	–	–	–	–	–	–	–	–	–	–
SUTHERLAND:—																												
County	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total for County of Sutherland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
WIGTOWN:—																												
County and Royal Burgh.	No record kept.																											
Stranraer, Royal Burgh	10	5	9	9	10	6	9	10	12	12	9	8	7	6	–	–	–	122	–	–	–	–	–	–	–	–	–	–
Total for County of Wigtown	10	5	9	9	10	6	9	10	12	12	9	8	7	6	–	–	–	122	–	–	–	–	–	–	–	–	–	–
ZETLAND:—																												
Lordship	No return made.																											
Total for County of Zetland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
JERSEY, ISLAND OF	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Jersey weights 522	522	–	–	–	–	–	–	–	–	–	–
MAN, ISLE OF:—																												
Douglas District	16	7	21	24	44	49	71	68	59	51	40	45	34	–	–	–	–	529	–	–	–	–	–	–	–	–	–	–
Ramsey District	135	54	68	84	93	103	126	106	87	61	52	48	14	–	–	–	–	1,031	–	–	–	–	–	–	–	–	–	–
Castletown District Peel District	No returns.																											
Total for Isle of Man	151	61	89	108	137	152	197	174	146	112	92	93	48	–	–	–	–	1,560	–	–	–	–	–	–	–	–	–	–

and Measures in Great Britain, for the Year ended 31 December 1866—*continued.*

Troy.					Bullion Weight.	Measures of Capacity.																						Measures of Length.	Gas Measures.			County. District, City, Town, &c.
						Liquid Measures.										Measures for Dry Goods.																
6 grs.	3 grs.	2 grs.	1 gr.	Total.		4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Yards.	Gas Meters.	Gas Holders.	Total.	
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	NAIRN:— Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Nairn.
–	–	–	–	–	–	–	–	1	1	2	5	4	4	3	–	20	4	–	–	–	–	–	–	–	–	–	4	6	–	–	–	ORKNEY:— County.
–	–	–	–	–	–	–	–	1	1	2	5	4	4	3	–	20	4	–	–	–	–	–	–	–	–	–	4	6	–	–	–	Total for County of Orkney.
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	PEEBLES:— County.
–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Peebles, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	3	–	1	–	–	4	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	Total for County of Peebles.
–	–	–	–	–	–	14	18	83	208	360	526	701	571	271	–	2,757	60	–	2	–	41	23	–	–	–	–	126	114	–	–	–	PERTH:— County.
–	–	–	–	–	–	12	2	19	23	36	50	90	80	52	–	364	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Culross, Royal Burgh. Perth, City or Burgh.
–	–	–	–	–	–	26	20	107	231	396	576	791	651	323	–	3,121	60	–	2	–	41	23	–	–	–	–	126	114	–	–	–	Total for County of Perth.
–	–	–	–	–	–	1	4	9	8	–	–	–	–	–	135	157	4	–	–	–	–	–	–	–	–	–	4	3	–	–	–	RENFREW:— County.
						No inspection until 1867.										Not stated.																
–	–	–	–	–	–	4	4	11	7	56	47	–	45	29	–	203	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Greenock, Burgh. Paisley, Burgh. Pollockshaws, Burgh.
						No Standards in use.																									
–	–	–	–	–	–	–	–	–	–	–	–	2	2	1	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Renfrew, Royal Burgh.
–	–	–	–	–	–	5	8	20	15	56	47	2	47	30	135	365	4	–	–	–	–	–	–	–	–	–	4	3	–	–	–	Total for County of Renfrew.
–	–	–	–	–	–	3	10	48	76	91	119	193	169	76	–	785	41	1	3	–	–	–	–	–	–	–	45	84	–	–	–	ROSS:— County.
–	–	–	–	–	–	–	–	1	7	19	21	27	19	5	–	99	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Tain, Royal Burgh.
–	–	–	–	–	–	3	10	49	83	110	140	220	188	81	–	884	41	1	3	–	–	–	–	–	–	–	45	84	–	–	–	Total for County of Ross.
–	–	–	–	–	–	2	–	14	13	42	51	74	59	23	–	278	12	3	–	3	3	3	–	–	–	–	24	12	–	–	–	ROXBURGH:— County.
–	–	–	–	–	–	2	–	14	13	42	51	74	59	23	–	278	12	3	–	3	3	3	–	–	–	–	24	12	–	–	–	Total for County of Roxburgh.
–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	–	7	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	SELKIRK:— County and Royal Burgh.
–	–	–	–	–	–	–	–	1	1	1	1	1	1	1	–	7	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Total for County of Selkirk.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	2	–	–	–	–	STIRLING:— County.
–	–	–	–	–	–	–	–	1	2	26	23	25	11	5	–	93	9	–	–	–	–	–	–	–	–	–	9	–	–	–	–	Falkirk, Parliamentary Burgh.
–	–	–	–	–	–	–	–	6	6	10	10	26	30	6	–	94	18	10	8	4	–	–	–	–	–	–	40	–	–	–	–	Stirling, Royal Burgh.
–	–	–	–	–	–	–	–	7	8	36	33	51	41	11	–	187	29	10	8	4	–	–	–	–	–	–	51	–	–	–	–	Total for County of Stirling.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	SUTHERLAND:— County.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Sutherland.
						No record kept.																										WIGTOWN:— County and Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	8	6	8	–	–	–	–	–	–	32	–	–	–	–	Stranraer, Royal Burgh.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	8	6	8	–	–	–	–	–	–	32	–	–	–	–	Total for County of Wigtown.
						No return made.																										ZETLAND:— Lordship.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Total for County of Zetland.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1 oyster meas., 32 potato measres.	33	1 ell	–	–	–	JERSEY, ISLAND of.
–	–	–	–	–	–	–	–	2	1	9	35	42	5	6	–	100	1	–	1	1	–	–	–	–	–	–	3	137	–	–	–	MAN, ISLE OF:— Douglas District.
–	–	–	–	–	–	–	–	2	–	16	17	11	5	5	–	56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Ramsey District.
						No returns.																										Castletown District. Peel District.
–	–	–	–	–	–	–	–	4	1	25	52	53	10	11	–	156	1	–	1	1	–	–	–	–	–	–	3	137	–	–	–	Total for Isle of Man.

Appendix III.—*continued.*—SUMMARY OF ABSTRACT (D.)—ENGLAND - - - -

Counties.	Avoirdupois Weights, stamped.																	Troy - - -											
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total. Weights the denominations of which are separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.	6 grs.
Bedford - -	356	210	444	768	861	1193	1531	1371	1299	1155	993	868	604	1	–	–	–	11,654	–	–	–	–	–	–	–	–	–	–	–	–
Berks - - -	569	255	302	353	486	583	687	635	621	573	523	459	383	–	–	–	–	6,429	–	–	–	–	–	–	–	–	–	–	–	–
Bucks - - -	606	311	369	582	868	1023	1209	1210	1056	977	752	537	349	–	–	–	–	9,840	–	–	–	–	–	–	–	–	–	–	–	–
Cambridge - -	637	238	354	399	447	508	795	706	631	530	470	378	318	–	–	–	–	6,411	–	–	–	–	–	–	–	–	–	–	–	–
Chester - -	3575	1804	3388	5135	6409	6521	8283	7003	6239	5100	4854	4659	3093	–	1	–	600	63,664	–	–	–	–	–	–	–	–	–	–	–	–
Cornwall - -	2727	1445	2147	3224	3136	3501	4559	3781	3028	2611	2557	2329	2086	1	–	–	–	37,132	–	–	–	–	–	–	–	–	–	–	–	–
Cumberland -	1455	551	1104	1805	613	1187	1865	1571	1323	1121	1067	971	771	–	–	–	–	15,409	–	–	–	–	–	–	–	–	–	–	–	–
Derby - - -	132	91	140	193	212	257	370	382	358	330	388	309	248	10	3	1	–	3,424	–	–	–	–	–	–	–	–	–	–	–	–
Devon - - -	1532	1193	1955	930	1180	1312	1667	1407	1191	990	1191	782	703	–	–	–	9,079	25,112	–	–	–	–	–	–	–	–	–	–	–	–
Dorset - - -	822	759	528	806	1114	1426	1740	1284	893	643	605	348	230	–	–	–	–	11,201	–	–	–	–	–	–	–	–	–	–	–	–
Durham - -	3423	1001	1560	1824	1261	1935	2824	2738	2408	2019	1768	1703	1536	6	6	3	–	26,015	1	1	1	1	1	1	1	1	1	1	1	1
Essex - - -	3712	1901	2798	4048	3883	4417	4824	4184	3724	3143	2681	2177	1406	1	–	–	1,402	44,301	–	–	–	–	–	–	–	–	–	–	–	–
Gloucester- -	2116	902	976	1156	1161	1415	1669	1449	1343	1156	998	925	837	–	–	–	–	16,103	–	–	–	–	–	–	–	–	–	–	–	–
Hants - - -	62	31	38	27	29	42	25	30	26	15	20	8	–	–	–	–	436	789	–	–	–	–	–	–	–	–	–	–	–	–
Hereford - -	551	406	684	767	604	756	1063	943	856	752	706	648	568	1	–	–	–	9,305	–	–	–	–	–	–	–	–	–	–	–	–
Herts - - -	176	107	134	164	171	179	225	221	215	188	168	147	109	–	–	–	–	2,204	–	–	–	–	–	–	–	–	–	–	–	–
Huntingdon -	328	162	457	323	363	550	764	681	650	528	424	301	227	–	–	–	–	5,758	–	–	–	–	–	–	–	–	–	–	–	–
Kent - - -	1801	1159	1338	1646	1754	2033	2041	1969	1890	1699	1841	1791	1630	2	–	–	2,410	25,004	–	–	–	–	–	–	–	–	–	–	–	–
Lancaster - -	22649	7060	11099	15631	22562	26185	32096	28556	24683	20661	17408	14558	10971	430	240	12	9,146	263,947	–	–	1	7	7	21	55	40	33	30	23	34
Leicester - -	321	98	211	447	560	715	1200	1067	997	873	844	695	568	13	–	–	–	8,609	–	–	–	–	–	–	–	–	–	–	–	–
Lincoln - -	4896	2071	3613	4407	2377	3429	5454	4470	4146	3654	3588	3540	3132	1017	623	425	708	51,550	–	–	–	–	–	–	–	–	–	–	–	–
Middlesex - -	3614	1083	1465	–	1	1	4	4	3	2	3	2	–	–	–	–	65,125	71,307	–	–	–	–	–	–	–	–	–	–	–	–
Monmouth - -	955	297	372	445	466	589	1185	557	549	528	502	488	465	–	–	–	–	7,398	–	–	–	–	–	–	–	–	–	–	–	–
Norfolk - -	1622	383	791	942	910	1724	1925	1345	1303	1137	1064	980	779	30	1	1	–	14,937	–	–	–	–	–	–	–	–	–	–	–	–
Northampton -	1345	818	1129	1871	2223	2338	2018	1720	1463	1204	1014	829	733	8	1	–	–	18,914	–	–	–	–	–	–	–	–	–	–	–	–
Northumberland	3230	1072	2081	2191	2000	2211	2645	2516	2064	1645	1607	1565	1351	–	–	1	2,670	28,849	–	–	–	–	–	–	–	–	–	–	–	–
Nottingham -	1608	760	1966	2941	2465	2906	4283	4154	3784	3217	3054	2664	2379	18	6	–	–	36,205	–	–	–	–	–	–	–	–	–	–	–	–
Oxford - - -	2483	1164	1211	1692	2238	2666	2851	2663	2526	2277	2022	1657	1148	–	–	–	–	26,648	1	1	1	1	1	1	1	–	–	–	–	–
Rutland - -	64	19	51	56	74	126	205	168	133	100	105	61	62	–	–	–	–	1,224	–	–	–	–	–	–	–	–	–	–	–	–
Salop - - -	1525	741	1039	1183	1753	1639	435	415	402	386	379	362	356	4	–	–	10,833	21,452	–	–	–	–	–	–	–	–	–	–	–	–
Somerset - -	10088	2465	2903	3930	4894	5500	6617	5812	5327	4417	3934	3043	2666	10	6	3	–	61,655	2	2	–	6	7	6	8	–	1	–	–	–
Stafford - -	180	99	275	440	577	769	976	918	1000	917	686	405	564	–	–	–	40,742	48,548	2	2	2	2	2	2	–	–	–	–	–	–
Suffolk - -	2766	1369	2377	2940	2765	3564	4183	3567	3212	2718	2327	1846	1550	–	–	–	–	35,184	–	–	–	–	–	–	–	–	–	–	–	–
Surrey - - -	3031	1207	1153	241	267	296	359	311	296	222	201	157	119	–	–	–	32,033	39,893	–	–	–	–	–	–	–	–	–	–	–	–
Sussex - - -	2224	1170	1556	2041	2289	2616	3262	3225	2753	2395	2184	1655	1305	10	1	–	–	28,686	1	1	1	1	1	–	–	–	–	–	–	–
Warwick - -	4321	1763	1921	858	1403	1567	2090	1871	1712	1428	1179	718	499	–	–	–	44,606	65,936	–	–	–	–	–	–	–	–	–	–	–	–
Westmoreland -	290	165	304	432	280	365	539	433	343	285	324	318	252	–	–	–	–	4,330	–	–	–	–	–	–	–	–	–	–	–	–
Wilts - - -	198	132	119	132	175	151	253	266	255	249	236	256	221	7	–	–	–	2,700	–	–	–	–	–	–	–	–	–	–	–	–
Worcester - -	1716	537	1006	1191	1627	1835	2257	2035	1807	1679	1517	1341	983	29	–	–	1,098	23,658	–	–	–	–	–	–	–	–	–	–	–	–
York - - -	5771	2067	3963	4413	3517	5049	7819	6703	5633	4858	4321	3511	2447	77	3	1	232	60,385	–	1	1	5	7	–	–	–	–	–	–	–
Total for England	99477	39063	59321	72624	80015	95279	118788	104341	92150	78382	70355	59991	47648	1675	891	447	221,120	1,241,779	7	8	7	23	26	31	65	41	35	31	24	35

WALES - - -

SUMMARY OF ABSTRACT (D.)—England.

Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	Counties.
–	–	–	–	–	–	–	–	–	448	552	573	246	206	–	2,025	17	1	22	27	36	20	–	–	–	–	123	31	–	–	–	Bedford.
–	–	–	–	–	–	–	3	–	795	666	334	110	89	–	1,997	86	14	36	554	532	183	–	–	–	–	1405	5	–	–	–	Berks.
–	–	–	–	–	–	–	–	4	127	322	155	69	46	–	723	29	4	32	55	63	8	–	–	–	–	191	12	–	–	–	Bucks.
–	–	–	–	–	–	10	18	7	135	554	378	86	76	–	1,264	28	2	26	40	101	43	–	–	–	–	240	67	–	–	–	Cambridge.
–	–	–	–	–	3	10	18	21	980	1665	1219	356	206	–	4,478	2	–	8	29	116	11	–	–	–	–	166	161	–	–	–	Chester.
–	–	–	–	–	–	2	33	62	514	903	638	416	320	–	2,888	10	66	29	50	23	6	–	–	–	–	187	121	–	–	–	Cornwall.
–	–	–	–	–	2	12	28	45	237	549	336	160	127	–	1,496	12	2	4	5	–	91	–	–	–	–	114	48	–	–	–	Cumberland.
–	–	–	–	–	5	5	6	18	121	156	111	59	45	–	526	–	–	1	1	1	6	9	–	–	–	18	68	–	–	–	Derby.
–	–	–	–	–	10	5	32	31	249	303	358	174	146	694	2,002	12	90	180	81	26	19	–	–	–	–	408	159	–	–	–	Devon.
–	–	–	–	–	4	3	17	15	55	77	72	35	19	–	297	13	10	11	82	64	10	–	–	–	–	190	15	–	–	–	Dorset.
1	1	1	15	–	18	69	136	137	1078	1704	1985	655	518	–	6,300	8	30	94	153	141	105	–	–	–	23	554	269	–	–	–	Durham.
–	–	–	–	–	3	12	23	40	3541	5316	2436	905	609	–	12,885	257	45	305	323	410	171	5	2	–	–	1518	316	–	–	–	Essex.
–	–	–	–	–	1	3	8	5	168	195	193	88	74	–	735	12	1	4	39	38	6	–	–	–	–	100	3	–	–	–	Gloucester.
–	–	–	–	–	–	–	–	–	8	13	7	4	6	342	380	2	16	7	7	–	2	–	–	–	–	34	–	–	–	–	Hants.
–	–	–	–	–	–	–	–	–	92	119	104	55	48	–	418	5	4	5	7	10	7	–	–	–	–	38	26	–	–	–	Hereford.
–	–	–	–	–	–	–	–	–	80	155	58	26	14	–	333	23	10	7	6	8	3	–	–	–	–	57	12	–	–	–	Herts.
–	–	–	–	–	–	3	7	3	316	356	494	150	105	–	1,434	8	2	13	17	17	14	–	–	–	–	71	8	–	–	–	Huntingdon.
–	–	–	–	–	3	5	10	37	2214	3066	1169	543	442	–	7,490	222	69	136	1021	802	383	1	–	–	361	2995	196	–	–	–	Kent.
29	30	40	350	111	266	357	418	692	7292	12596	9812	2844	2065	1,067	37,409	185	31	396	1677	825	487	6	–	–	39	3646	6924	–	–	–	Lancaster.
–	–	–	–	–	–	4	13	2	363	184	250	81	81	–	978	26	6	1	66	80	130	–	–	–	–	309	53	–	–	–	Leicester.
–	–	–	–	–	2	7	57	41	602	962	1234	548	273	–	3,726	46	2	42	75	59	31	–	–	–	–	255	614	–	–	–	Lincoln.
–	–	–	–	–	17	72	112	158	14	7	–	1	–	96,317	96,698	3	6	1	–	–	–	–	–	–	16,260	16270	12895	38298	–	38298	Middlesex.
–	–	–	–	–	4	2	2	2	34	33	31	18	32	102	260	3	1	2	5	58	27	–	–	–	–	96	3	–	–	–	Monmouth.
–	–	–	–	–	2	8	31	37	607	1430	1137	285	131	–	3,668	393	21	337	347	745	353	265	179	97	–	2737	38	–	–	–	Norfolk.
–	–	–	–	–	3	23	64	26	1140	1460	1542	777	591	–	5,626	59	19	83	238	288	175	–	–	–	–	862	187	–	–	–	Northampton.
–	–	–	–	–	11	20	177	228	770	1114	1196	574	521	519	5,130	6	16	6	13	12	12	–	–	–	–	65	287	–	–	–	Northumberland.
–	–	–	–	–	3	15	53	27	378	963	1809	214	157	–	3,619	27	7	5	5	12	4	–	–	–	–	60	279	–	–	–	Nottingham.
–	–	–	7	–	3	24	28	28	981	1425	1287	632	555	–	4,963	56	11	41	83	59	20	–	–	–	–	270	22	–	–	–	Oxford.
–	–	–	–	–	–	–	–	–	22	17	18	7	7	–	71	4	–	3	6	5	–	–	–	–	–	18	7	–	–	–	Rutland.
–	–	–	–	–	–	4	41	66	101	90	70	16	22	672	1,082	10	15	47	21	24	12	–	–	–	173	302	189	–	–	–	Salop.
–	–	–	32	9	30	51	226	222	671	1236	1000	612	401	–	4,449	94	80	123	409	440	300	–	–	–	–	1446	201	–	–	–	Somerset.
–	–	–	12	–	–	5	12	26	265	199	203	47	31	4,535	5,323	7	6	9	42	56	20	–	–	–	544	684	305	–	–	–	Stafford.
–	–	–	–	–	–	7	11	17	196	351	358	102	64	–	1,106	172	15	140	152	240	147	53	–	–	–	919	129	–	–	–	Suffolk.
–	–	–	–	–	4	15	63	121	332	540	269	23	26	32,566	33,959	4	3	16	4	5	3	–	–	–	6	41	158	–	–	–	Surrey.
–	–	–	5	–	2	10	22	27	457	836	741	279	148	–	2,522	56	53	38	170	133	92	22	23	–	–	587	266	–	–	–	Sussex.
–	–	–	–	–	38	91	286	231	159	233	215	137	82	8,677	10,149	274	75	20	30	19	23	11	5	–	2,569	3026	2374	–	–	–	Warwick.
–	–	–	–	–	–	–	3	3	181	112	84	19	13	–	415	1	7	–	–	–	–	–	–	–	–	8	55	–	–	–	Westmoreland.
–	–	–	–	–	2	1	42	39	34	33	35	9	8	–	203	18	34	54	41	34	8	–	–	–	–	189	4	–	–	–	Wilts.
–	–	–	–	–	7	10	14	109	410	554	537	307	264	–	2,212	39	25	61	166	207	184	–	–	–	–	682	74	–	–	–	Worcester.
–	–	–	14	232	10	34	105	117	972	2236	2019	644	457	–	6,594	30	26	72	98	84	57	–	–	–	–	367	911	5978	8	5986	York.
30	31	41	435	355	453	899	2119	2644	27139	43282	34467	12313	9026	145,401	277833	2259	825	2417	6145	5776	3173	372	209	97	19,975	41,248	27494	44276	8	44284	Total for England.

Wales.

–	–	–	–	–	–	–	7	5	95	121	131	87	74	–	520	3	3	1	–	–	–	–	–	–	–	7	130	–	–	–	Anglesea.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Brecon.
–	–	–	–	–	–	–	–	–	4	10	8	20	–	–	42	3	5	8	1	–	–	–	–	–	–	17	1	–	–	–	Carmarthen.
–	–	–	–	–	–	–	8	7	9	8	7	7	6	–	52	14	12	8	–	–	–	–	–	–	–	34	28	–	–	–	Cardigan.
–	–	–	–	–	11	5	15	6	26	37	34	26	25	–	185	19	–	–	–	–	–	–	–	–	–	19	115	–	–	–	Carnarvon.
–	–	–	–	–	–	–	–	3	175	341	243	63	28	–	853	–	4	–	–	–	–	–	–	–	–	4	77	–	–	–	Denbigh.
–	–	–	–	–	–	–	1	–	88	171	225	115	54	–	654	6	5	2	1	1	–	–	–	–	–	15	47	–	–	–	Flint.
–	–	–	–	–	–	2	8	26	437	1106	107	78	51	–	1815	2	1	4	2	2	1	–	–	–	–	12	45	–	–	–	Glamorgan.
–	–	–	–	–	–	–	–	–	10	14	35	9	8	–	76	4	12	6	7	–	–	–	–	–	–	29	52	–	–	–	Merioneth.
–	–	–	–	–	–	–	–	–	28	30	24	2	2	–	86	3	1	–	–	–	–	–	–	–	–	4	10	–	–	–	Montgomery.
–	–	–	–	–	–	–	–	–	1	2	1	1	1	–	6	2	–	–	–	–	–	–	–	–	–	2	–	–	–	–	Pembroke.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Radnor.
–	–	–	–	–	11	7	39	47	873	1840	815	408	249	–	4,289	56	43	29	11	3	1	–	–	–	–	143	505	–	–	–	Total for Wales.

Appendix III.—*continued.*—Summary of Abstract (D.)—*continued.*

Counties.	Avoirdupois Weights, stamped.																		Troy										
	56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total Weights the denominations of which are not separately distinguished.	Total.	1 lb.	6 ozs.	3 ozs.	2 ozs.	1 oz.	10 dwts.	5 dwts.	3 dwts.	2 dwts.	1 dwt.	12 grs.	6 grs.
SCOTLAND																													
Aberdeen	1472	766	999	1091	1196	1328	1607	1492	1225	912	854	827	547	51	36	–	–	14,403	–	–	–	–	–	–	–	–	–	–	–
Argyll	24	21	44	59	60	66	62	58	67	41	42	39	21	1	–	–	–	605	–	–	–	–	–	–	–	–	–	–	–
Ayr	825	365	862	1217	1258	1604	1782	1867	1608	1015	1030	993	795	38	6	–	–	15,265	–	–	–	–	–	–	–	–	–	–	–
Berwick	47	12	23	39	38	56	84	100	58	49	48	41	42	–	–	–	–	637	–	–	–	–	–	–	–	–	–	–	–
Banff	28	9	13	19	14	17	39	23	15	45	21	27	27	2	2	–	–	301	–	–	–	–	–	–	–	–	–	–	–
Bute	67	34	54	74	81	94	108	96	73	46	49	46	29	16	–	–	–	867	–	–	–	–	–	–	–	–	–	–	–
Caithness	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Clackmannan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cromarty	16	17	22	24	31	26	29	22	27	33	44	47	25	13	–	–	–	376	–	–	–	–	–	–	–	–	–	–	–
Dumbarton	450	176	340	431	431	410	609	523	622	321	291	319	184	57	5	–	–	5,169	–	–	–	–	–	–	–	–	–	–	–
Dumfries	629	233	445	456	307	496	706	565	496	424	416	410	24	–	–	–	–	5,607	–	–	–	–	–	–	–	–	–	–	–
Edinburgh	3083	751	1093	1653	1699	2147	2932	2781	2452	2153	1831	1633	1339	36	10	–	–	25,593	–	–	–	–	–	–	–	–	–	–	–
Elgin	31	34	38	41	64	70	106	90	36	54	30	18	12	–	–	–	–	624	–	–	–	–	–	–	–	–	–	–	–
Fife	119	82	109	62	68	41	55	81	71	66	111	122	102	30	25	20	5,162	6,326	–	–	–	–	–	–	–	–	–	–	–
Forfar	1139	439	532	702	657	807	1256	1074	973	678	619	576	448	279	266	14	–	10,459	–	–	–	–	–	–	–	–	–	–	–
Haddington	25	14	14	26	22	27	34	36	23	31	32	30	24	12	–	–	–	350	–	–	–	–	–	–	–	–	–	–	–
Inverness	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kirkcudbright	463	246	411	431	310	424	524	382	362	382	302	254	181	160	80	–	–	4,912	–	–	–	–	–	–	–	–	–	–	–
Kincardine	19	23	33	61	71	104	117	107	79	54	39	13	4	2	–	–	–	726	–	–	–	–	–	–	–	–	–	–	–
Kinross	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Lanark	12121	2448	4276	5965	6316	6803	9125	9167	8255	5048	5182	4623	3944	1992	1147	104	–	86,516	4	6	6	6	7	8	8	8	8	8	8	8
Linlithgow	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nairn	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Orkney	127	92	133	155	126	139	179	133	126	77	72	84	49	–	–	–	–	1,492	–	–	–	–	–	–	–	–	–	–	–
Peebles	23	9	13	26	26	26	32	29	17	18	23	13	9	6	–	–	–	270	–	–	–	–	–	–	–	–	–	–	–
Perth	1145	1127	1458	1402	1361	1616	2133	1777	1329	1120	1056	954	577	31	32	35	–	17,153	–	–	–	–	–	–	–	–	–	–	–
Renfrew	1267	398	731	288	221	407	517	393	428	224	204	322	132	27	–	–	5,591	11,150	–	–	–	–	–	–	–	–	–	–	–
Ross	288	333	417	480	480	542	674	646	491	440	404	399	289	34	8	3	–	5,928	–	–	–	–	–	–	–	–	–	–	–
Roxburgh	221	123	218	248	149	227	400	312	284	238	212	200	135	7	–	–	–	2,974	–	–	–	–	–	–	–	–	–	–	–
Selkirk	38	22	26	–	–	–	–	–	–	–	–	–	–	–	–	–	473	559	–	–	–	–	–	–	–	–	–	–	–
Stirling	203	86	140	206	202	264	260	219	173	97	86	204	207	24	13	–	–	2,384	–	–	–	–	–	–	–	–	–	–	–
Sutherland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wigtown	10	5	9	9	10	6	9	10	12	12	9	8	7	6	–	–	–	122	–	–	–	–	–	–	–	–	–	–	–
Zetland	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total for Scotland*	23880	7865	12453	15165	15198	17747	23379	21983	19302	13578	13007	12202	9153	2824	1630	176	11,226	220,768	4	6	6	6	7	8	8	8	8	8	8

Total Number of Weights and Measures stamped

England	99477	39066	59321	72624	80015	95279	118788	104341	92150	78382	70555	59991	47648	1675	891	447	221,120	1,241,770	7	8	7	23	26	31	65	41	35	31	24	35
Wales	4231	2012	2901	3882	4544	5240	7267	4995	4415	3808	3224	2944	2388	20	19	19	4,724	56,633	–	–	–	–	–	–	–	–	–	–	–	–
Scotland	23880	7865	12453	15165	15198	17747	23379	21983	19302	13578	13007	12202	9153	2824	1630	176	11,226	220,768	4	6	6	6	7	8	8	8	8	8	8	8
TOTAL FOR GT. BRITAIN	127588	48943	74675	91671	99757	118266	149434	131319	115867	95768	86786	75137	59189	4519	2540	642	237,070	1,519,171	11	14	13	29	33	39	73	49	43	39	32	43
Jersey, Island of	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Jersey weights 522	522	–	–	–	–	–	–	–	–	–	–	–	–
Man, Island of	151	61	89	108	137	152	197	174	146	112	92	93	48	–	–	–	–	1,560	–	–	–	–	–	–	–	–	–	–	–	–

Summary of Places where Weights and Measures have been stamped

	No. of Places.	Weights.															
		112 lbs.	60 lbs.	40 lbs.	30 lbs.	20 lbs.	50 lbs.	15 lbs.	12 lbs.	10 lbs.	8 lbs.	6 lbs.	5 lbs.	3½ lbs.	3 lbs.	1½ lbs.	Total.
England	8	–	–	–	–	10	–	–	19	39	–	14	–	1,025	9	6	1,122
Wales	1	–	184	1	22	27	1	12	3	38	5	10	20	–	33	–	365
Scotland	5	4	1	1	–	–	–	–	–	–	–	–	–	336	–	–	342
Total for Great Britain	14	4	185	2	22	37	1	12	22	77	5	24	29	1,361	42	6	1,829

* Excluding County of Caithness.

Appendix III.—*continued.*—Summary of Abstract D.—*continued.*

Troy. 3 grs.	Troy. 2 grs.	Troy. 1 gr.	Troy. Total.	Bullion Weight.	Measures of Capacity. Liquid Measures. 4 galls.	2 galls.	1 gall.	½ gall.	Quart.	Pint.	½ pint.	Gill.	¼ gill.	Total Liquid Measures the denominations of which are not separately distinguished.	Total.	Measures for Dry Goods. Bushel.	½ bushel.	Peck.	½ peck or gall.	¼ peck or ½ gall.	Quart.	Pint.	½ pint.	¼ pint.	Total Dry Measures the denominations of which are not separately distinguished.	Total.	Measures of Length. Yards.	Gas Measures. Gas Meters.	Gas Holders.	Total.	Counties.
															SCOTLAND.															
–	–	–	–	–	4	5	73	168	90	316	326	400	139	–	1,521	131	–	48	42	43	19	–	–	–	–	283	69	–	–	–	Aberdeen.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Argyll.
–	–	–	–	–	3	8	46	48	184	171	274	341	124	–	1,199	15	–	–	–	–	–	–	–	–	–	15	4	–	–	–	Ayr.
–	–	–	–	–	–	–	4	6	9	6	4	7	5	–	41	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	Berwick.
–	–	–	–	–	–	–	1	–	1	14	15	3	4	–	38	9	–	2	2	1	1	–	–	–	–	15	–	–	–	–	Banff.
–	–	–	–	–	–	–	3	5	2	2	1	–	–	–	13	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	Bute.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Caithness.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Clackmannan.
–	–	–	–	–	–	1	6	6	13	14	16	21	11	–	88	3	–	–	–	–	–	–	–	–	–	3	2	–	–	–	Cromarty.
–	–	–	–	–	2	–	29	29	145	134	200	217	79	–	835	1	–	–	–	–	–	–	–	–	–	1	11	–	–	–	Dumbarton.
–	–	–	–	–	3	3	31	37	117	154	200	222	98	–	865	24	2	1	–	7	4	–	–	–	–	38	38	–	–	–	Dumfries.
–	–	–	–	–	46	43	239	305	1211	1480	1943	976	678	–	6,921	99	1	24	98	118	66	–	–	–	–	406	209	33895	1	33896	Edinburgh.
–	–	–	–	–	2	6	18	24	96	132	108	–	–	–	386	9	–	12	7	2	–	–	–	–	–	30	36	–	–	–	Elgin.
–	–	–	–	–	8	9	15	59	57	29	35	32	36	755	1,035	17	–	8	10	9	1	–	–	–	–	45	86	–	–	–	Fife.
–	–	–	–	–	31	10	57	40	124	167	190	121	75	–	815	18	–	–	–	2	2	–	–	–	–	22	76	–	2	2	Forfar.
–	–	–	–	–	–	–	3	1	19	21	13	7	1	–	65	1	1	1	1	–	–	–	–	–	–	4	1	–	–	–	Haddington.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Inverness.
–	–	–	–	–	1	–	31	26	45	–	–	–	–	404	507	1	–	–	–	–	–	–	–	–	–	1	28	–	–	–	Kirkcudbright.
–	–	–	–	–	–	–	2	2	1	29	24	3	1	–	62	8	–	–	1	1	1	–	–	–	–	11	4	–	–	–	Kincardine.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Kinross.
8	8	8	109	–	143	138	446	701	2046	2019	1887	2255	1194	–	10,829	55	–	1	6	–	–	–	–	–	–	62	395	–	–	–	Lanark.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Linlithgow.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Nairn.
–	–	–	–	–	–	–	1	1	2	5	4	4	3	–	20	4	–	–	–	–	–	–	–	–	–	4	6	–	–	–	Orkney.
–	–	–	–	–	–	–	–	–	–	3	–	1	–	–	4	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	Peebles.
–	–	–	–	–	26	20	107	231	396	576	791	651	323	–	3,121	60	–	2	–	41	23	–	–	–	–	126	114	–	–	–	Perth.
–	–	–	–	–	5	8	20	15	56	47	2	47	30	135	365	4	–	–	–	–	–	–	–	–	–	4	3	–	–	–	Renfrew.
–	–	–	–	–	3	10	49	83	110	140	220	188	81	–	884	41	1	3	–	–	–	–	–	–	–	45	84	–	–	–	Ross.
–	–	–	–	–	2	–	14	13	42	51	74	59	23	–	278	12	3	–	3	3	3	–	–	–	–	24	12	–	–	–	Roxburgh.
–	–	–	–	–	–	–	1	1	1	1	1	1	1	–	7	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	Selkirk.
–	–	–	–	–	–	–	7	8	36	33	51	41	11	–	187	29	10	8	4	–	–	–	–	–	–	51	–	–	–	–	Stirling.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Sutherland.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	8	6	8	–	–	–	–	–	–	32	–	–	–	–	Wigtown.
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Zetland.
8	8	8	109	–	279	261	1203	1809	4803	5554	6369	5597	2917	1,294	30,086	553	26	116	182	227	120	–	–	–	–	1,224	1185	33895	3	33898	Total for Scotland.*

of the same Denomination as the Official Standards.

30	31	41	435	355	453	899	2119	2644	27139	43282	34467	12313	9026	145,491	277,833	2259	825	2412	6115	5776	3178	372	209	97	19,975	41,248	27491	44276	8	44284	England.
–	–	–	–	–	11	7	39	47	873	1840	815	408	249	–	4,289	56	43	29	11	3	1	–	–	–	–	143	505	–	–	–	Wales.
8	8	8	109	–	279	261	1203	1809	4803	5554	6369	5597	2917	1,294	30,086	553	26	116	182	227	120	–	–	–	–	1,224	1185	33895	3	33898	Scotland.
38	39	49	544	355	743	1167	3361	4500	32815	50676	41651	18318	12192	146,785	312,208	2868	894	2562	6338	6006	3294	372	209	97	19,975	42,615	29184	78171	11	78182	Total for Gt. Britain.

–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	†	33	1	–	–	–	Jersey, Island of.
–	–	–	–	–	–	–	4	1	25	52	53	10	11	–	156	1	–	1	1	–	–	–	–	–	–	3	137	–	–	–	Man, Island of.

of other Denominations than those mentioned in the above Abstract.

No. of Places.	Measures. 20 Gallons.	10 Gallons.	6 Gallons.	5 Gallons.	3 Gallons.	¼ Gill.	½ Pint.	⅛ Pint.	Total.	
5	–	–	–	11	32	–	3	2	48	England.
2	–	–	–	–	–	63	–	–	63	Scotland.
8	9	5	1	89	52	–	–	–	156	Wales.
15	9	5	1	100	84	63	3	2	267	Total for Great Britain.

† One oyster measure, 32 potatoe measures.

Appendix III.—*continued.*

List of Places where the Number of Weights and Measures stamped has been returned in the aggregate, and consequently not included in the foregoing Summary.

ENGLAND.

Lower South Aylesford Division, County of Kent, weights and measures	1,233
Blackburn Higher Division, County of Lancaster, liquid and dry measures	1,470
Prescot Division, County of Lancaster, weights and measures	5,172
City of London, troy and avoirdupois weights (no bullion)	27,203
City of Westminster, troy and avoirdupois weights (no bullion)	7,292
Ditto dry, liquid, and length measures	12,517
Leeds, Borough, troy and avoirdupois weights	19,034
Ditto dry, liquid, and length measures	3,137
Scarborough, Borough, liquid and dry measures	302
Total	77,360

Total Number of Weights and Measures stamped, of all Denominations, in Great Britain, during the Year ended 31 December 1866.

—	Of the same Denominations as the Official Standards.							Weights and Measures stamped, of which the Denomination is given in the Returns, but for which there are no specific legal Standards.	Weights and Measures stamped, the Number of which has only been given in the Returns in the aggregate.	Total of Weights and Measures stamped in Great Britain, for the Year ended 31 December 1866.
	Weights.			Measures.						
	Avoirdupois.	Troy.	Bullion.	Liquid.	Dry.	Length.	Gas.*			
England	1,241,770	435	355	277,833	41,248	27,494	44,284	1,170	77,360	1,711,949
Wales	56,633	—	—	4,239	143	505	—	428	—	61,998
Scotland	220,768	109	—	30,086	1,224	1,185	33,898	498	—	287,768
Total for Gt. Britain	1,519,171	544	355	312,208	42,615	29,184	78,182*	2,096	77,360	2,061,715

* The inspection of gas meters is distinct from the inspection of ordinary weights and measures, and the returns relating to gas meters have only been made in five instances, viz., Metropolitan District, Sheffield, York, Edinburgh, and Dundee.

H. W. Chisholm,
Warden of the Standards.

Standards Department, Board of Trade,
November 18, 1868.

Appendix III.—*continued.*

ABSTRACT of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in GREAT BRITAIN, for the Year ended December 31, 1866—*continued.*

ABSTRACT E.—AMOUNT of RECEIPTS and of EXPENDITURE connected with the LOCAL INSPECTION of WEIGHTS and MEASURES in GREAT BRITAIN.

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
BEDFORD	4 Subdivisions of the County.	7 12 6	0 1 6	County Treasurer.	34 7 6	County Treasurer.	—	—	42 1 6	48 10 4
	Bedford, Borough	0 15 0	—	—	0 7 11	Borough Treasurer.	—	—	1 2 11	20 0 0
	Luton, Manor	No Standards in use. Transferred to County.								
	Woburn, Manor									
	Total for County of Bedford	8 7 6	0 1 6	—	34 15 5	—	—	—	43 4 5	68 10 4
BERKS	7 Subdivisions of the County, viz.:—									
	Abingdon and Wallingford.	0 5 0	—	—	3 3 7	County Treasurer.	—	—	3 8 7	10 0 10
	Farringdon	—	—	—	3 10 11	„	—	—	3 10 11	10 2 9
	Maidenhead and Windsor.	—	—	—	0 9 2	„	—	—	0 9 2	10 3 0
	Newbury	0 0 3	—	—	8 4 7	„	—	—	8 4 10	10 5 8
	Reading	1 2 3	0 3 0	County Treasurer.	1 2 9	„	—	—	2 8 0	18 1 6
	Wantage	—	—	—	6 0 2	„	—	—	6 0 2	10 2 9
	Wokingham	2 9 6	—	—	3 5 1	„	—	—	5 14 7	10 1 6
	Abingdon, Borough	—	—	—	2 11 3	Inspector	—	—	2 11 3	2 11 3
	Maidenhead, Borough	—	—	—	—	—	—	—	—	—
	Newbury, Borough	No return made.								
	Reading, Borough	No return made.								
	Wallingford, Borough	Transferred to County.								
	Windsor, Borough	—	—	—	—	—	—	—	—	—
	Wokingham, Borough	Transferred to County.								
	Farringdon, Manor	No return made.								
	Total for County of Berks	3 17 0	0 3 0	—	28 7 6	—	—	—	32 7 6	81 9 3
BUCKS	6 Subdivisions of the County.	5 2 0	—	—	32 15 8	County Treasurer.	—	—	37 17 8	41 1 4
	Buckingham, Borough	—	—	—	0 15 5	Borough Treasurer.	—	—	0 15 5	2 8 0
	Wycombe, Borough	—	—	—	—	—	2 2 1	Borough Treasurer.	2 2 1	3 3 0
	Winslow, Manor	Transferred to County.								
	Total for County of Bucks	5 2 0	—	—	33 11 1	—	2 2 1	—	40 15 2	46 12 4
CAMBRIDGE	4 Subdivisions of the County.	2 1 6	0 16 0	County Treasurer.	7 17 1	County Treasurer.	—	—	10 4 7	—
	Cambridge, Borough	No return made.								
	Wisbech, Borough	—	—	—	18 13 10	Borough Treasurer.	—	—	18 13 10	22 10 9
	Total for County of Cambridge	2 1 6	0 16 0	—	26 10 11	—	—	—	29 8 5	22 10 9
CHESHIRE	9 Subdivisions of the County, viz.:—									
	Bricklow	0 15 0	—	—	20 7 7	County Treasurer.	4 10 10	County Treasurer.	25 13 5	46 14 4
	Broxton	1 1 3	0 3 1	County Treasurer.	10 9 10	„	2 6 7	„	14 0 9	27 1 0
	Eddisbury	2 5 0	0 11 7	„	19 4 8	„	3 6 5	„	25 7 8	33 14 6
	Hyde	3 4 3	0 0 5	„	31 0 9	„	7 14 11	„	42 0 4	45 19 6
	Macclesfield	0 15 3	—	—	12 1 2	„	4 1 7	„	16 18 0	32 9 5
	Nantwich	0 2 0	—	—	26 13 9	„	22 5 11	„	49 1 8	40 14 4
	Northwich	4 0 0	—	—	25 17 4	„	7 8 3	„	37 5 7	45 6 0
	Stockport	0 12 7	—	—	15 6 5	„	2 8 11	„	18 7 11	33 3 3
	Wirral	5 7 6	0 0 10	County Treasurer.	15 4 3	„	8 12 1	„	29 4 8	43 17 8
	Birkenhead, Town	—	—	—	—	—	5 1 6	Town Treasurer.	5 1 6	—

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Cheshire —*cont.*	Chester, City and Borough.	4 12 6	—	—	10 2 2	Borough Treasurer.	10 14 4	Borough Treasurer.	25 9 0	25 0 0
	Congleton, Borough	—	—	—	0 14 2	Inspector	6 14 8	Inspector	7 8 10	9 10 10
	Macclesfield, Borough	No return made.								
	Stockport, Borough	1 0 0	—	—	14 2 2	Borough Treasurer.	34 1 0	Borough Treasurer.	49 3 2	80 0 0
	Total for County of Chester	23 15 4	0 15 11	—	201 4 3	—	119 7 0	—	345 2 6	463 10 10
Cornwall	6 Subdivisions of the County.	15 0 6	1 12 9	County Treasurer.	113 6 11	County Treasurer.	—	—	130 0 2	88 17 0
	Bodmin, Borough	—	—	—	1 4 0	Inspector	1 18 0	Inspector	3 2 0	3 2 0
	Falmouth, Borough	—	—	—	1 15 6	,,	2 10 0	,,	4 5 6	4 5 6
	Helstone, Borough	0 8 6	—	—	0 5 3	Surveyor	0 8 10	Surveyor	1 2 7	8 2 7
	Launceston, Borough	No return made.								
	Liskeard, Borough	—	—	—	2 6 5	Inspector	1 0 0	Inspector	3 6 5	3 6 5
	Penryn, Borough	—	—	—	1 0 0	,,	2 10 0	,,	3 10 0	3 10 0
	Penzance, Borough	1 10 0	—	—	0 15 3	,,	—	—	2 5 3	5 15 3
	St. Germans, Borough	Transferred to County.								
	St. Ives, Borough	—	—	—	—	—	—	—	—	5 0 0
	Truro, Borough	—	—	—	—	—	—	—	—	10 0 0
	Total for County of Cornwall	16 19 0	1 12 9	—	120 13 4	—	8 6 10	—	147 11 11	131 18 9
Cumberland.	6 Subdivisions of the County.	—	2 6 10	County Treasurer.	43 13 8	County Treasurer.	23 10 0	Tradesman employed.	69 10 6	70 17 8
	Carlisle, City	7 15 0	—	—	9 11 8	Inspector	8 13 6	Inspector	26 0 2	49 5 2
	Workington, Town	—	—	—	—	—	—	—	—	—
	Total for County of Cumberland	7 15 0	2 6 10	—	53 5 4	—	32 3 6	—	95 10 8	120 2 10
Derby	12 Subdivisions of the County, viz.:—									
	Alfreton	4 10 0	—	—	0 11 9	County Treasurer.	3 0 0	Tradesman employed,	8 1 9	12 11 9
	Ashbourn	0 11 3	—	—	0 14 6	,,	10 17 7	Inspector	12 3 4	18 7 7
	Bakewell	3 8 6	—	—	1 3 6	,,	7 15 0	,,	12 7 0	7 15 0
	Belper	—	—	—	0 13 1	,,	8 11 0	Tradesman employed.	9 4 1	20 5 0
	Chapel-en-le-Frith	4 8 9	—	—	2 18 7	,,	—	—	7 7 4	Not stated.
	Chesterfield, including the Borough.	3 15 3	—	—	1 4 8	,,	—	—	4 19 11	12 0 0
	Derby	0 17 9	—	—	0 7 3	,,	3 0 0	Tradesman employed.	4 5 0	11 10 6
	Eckington	0 7 9	—	—	0 17 5	,,	2 16 8	,,	4 1 10	12 9 8
	Glossop, including the Borough.	0 7 3	—	—	0 6 9	,,	—	—	0 14 0	12 0 0
	Repton and Grisley	1 3 3	—	—	0 8 3	,,	5 19 0	Tradesman employed.	7 10 6	21 11 6
	Smalley	2 3 9	—	—	0 7 8	,,	8 0 0	,,	10 11 5	20 4 0
	Wirksworth	5 2 0	—	—	0 4 3	,,	—	—	5 6 3	17 18 2
	Chesterfield, Borough	Transferred to County.								
	Derby, Borough	No return made.								
	Glossop, Borough	Transferred to County.								
	Total for County of Derby	26 15 6	—	—	9 17 8	—	49 19 3	—	86 12 5	166 13 2
Devon	12 Subdivisions of the County, viz.:—									
	Barnstaple	16 7 0	0 8 6	County Treasurer.	2 14 1	County Treasurer.	7 3 6	Tradesman employed.	26 13 1	11 19 6
	Bideford and Torrington.	0 10 0	—	—	5 0 11	,,	5 7 0	,,	10 17 11	11 7 0
	Castle	—	—	—	2 2 8	,,	—	,,	2 2 8	2 2 8
	Collumpton	1 17 0	0 0 2	County Treasurer.	12 4 5	,,	—	—	14 1 7	39 14 0
	Honiton	2 0 0	0 1 6	County Treasurer.	6 8 11	,,	—	—	8 10 5	12 4 6
	Okehampton	0 10 3	—	—	1 12 8	Inspector	14 2 10	Inspector	16 5 9	15 15 6
	Paignton	7 8 3	0 3 3	County Treasurer.	14 14 1	County Treasurer.	—	—	22 5 7	12 7 6
	Stanborough and Coleridge.	—	—	—	0 13 0	Inspector	3 9 10	Inspector	4 2 10	4 2 10
	East Stonehouse, &c.	0 12 6	—	—	5 6 9	County Treasurer.	—	—	5 19 3	6 19 6
	Tavistock	—	—	—	4 3 9	,,	—	—	4 3 9	4 6 0
	Teignbridge	—	—	—	—	—	—	—	—	—
	Tiverton	1 5 6	—	—	4 17 2	County Treasurer.	—	—	6 2 8	Not stated.
	Barnstaple, Borough	No return made.								
	Bideford, Town	No return made.								
	Bradninch, Borough	—	—	—	1 2 1	Borough Treasurer.	—	—	1 2 1	2 0 0

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain.—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Devon—*cont.*	Dartmouth, Borough	No return made.								
	Devonport, Borough	0 1 3	—	—	3 9 4	Borough Treasurer.	—	—	3 10 7	24 14 0
	Exeter, City and County.	No return made.								
	Exmouth, Town	No return made.								
	GreatTorrington,Town	No Standards in use.								
	Holsworthy, Town and Manor.	0 9 9	—	—	0 5 7	County Treasurer.	3 3 9	Inspector	3 19 1	25 3 9
	Ilfracombe, Borough	Transferred to County.								
	Molton, South, Boro'	0 12 0	—	—	0 12 7	Borough Treasurer.	—	—	1 4 7	2 2 0
	Okehampton, Borough	Transferred to County.								
	Plymouth, Borough	1 0 0	0 14 0	Inspector	12 19 6	Inspector	8 10 0	Inspector	23 3 6	23 3 6
	Stoke Damerel, Parish	No return made. See Devonport, Borough.								
	Stonehouse, East, Par.	No return made.								
	Tiverton, Borough	—	—	—	2 2 9	Borough Treasurer.	—	—	2 2 9	1 0 0
	Totnes, Borough	—	—	—	—	—	—	—	—	—
	St. Sidwell, Manor	—	—	—	—	—	—	—	—	—
	Tavistock, Borough	—	—	—	—	—	—	—	—	—
	Total for County of Devon	32 13 6	1 7 5	—	80 10 4	—	41 16 11	—	156 8 2	199 2 3
Dorset	9 Subdivisions of the County.	7 3 0	0 4 10	County Treasurer.	38 6 9	County Treasurer.	—	—	45 14 7	52 12 8
	Bridport, Borough	Transferred to County.								
	Dorchester, Borough	—	—	—	0 12 0	Borough Treasurer.	1 1 10	Tradesman employed.	1 13 10	11 1 10
	Lyme Regis, Borough	1 0 0	—	—	1 2 10	,,	—	—	2 2 10	—
	Poole, Town and County.	—	—	—	0 17 11	,,	0 10 3	Tradesman employed.	1 8 2	0 15 3
	Weymouth, Borough	No return made.								
	Gillingham, Liberty and Manor.	No return made.								
	Total for County of Dorset	8 3 0	0 4 10	—	40 19 6	—	1 12 1	—	50 19 5	64 9 9
Durham	11 Subdivisions of the County, viz.:—									
	Barnard Castle	0 0 6	—	—	1 1 3	County Treasurer.	5 0 0	Inspector	6 1 9	6 0 0
	Bishop Auckland	1 10 0	—	—	3 2 9	,,	24 12 0	,,	29 4 9	37 18 0
	Castle Eden	0 7 0	0 0 6	County Treasurer.	0 7 6	,,	7 0 0	,,	7 15 0	8 0 0
	Chester	2 17 6	0 0 6	,,	1 13 6	,,	20 0 0	,,	24 11 6	31 0 0
	Darlington	0 17 6	0 5 0	,,	4 19 5	,,	10 0 0	,,	16 1 11	16 0 0
	Durham	—	—	—	0 3 7	,,	8 0 0	,,	8 3 7	9 0 0
	Houghton-le-Spring	—	—	—	0 15 6	,,	17 0 0	,,	17 15 6	18 0 0
	Jarrow	1 16 6	—	—	0 13 7	,,	14 0 0	,,	16 10 1	15 0 0
	Lanchester	0 8 9	—	—	0 6 10	,,	11 0 0	,,	11 15 7	12 0 0
	Stanhope	2 10 0	—	—	0 4 6	,,	10 0 0	,,	12 14 6	11 0 0
	West Hartlepool	2 13 0	0 3 6	County Treasurer.	1 4 4	,,	14 0 0	,,	18 0 10	15 0 0
	Gateshead, Borough	—	—	—	3 0 10	Borough Treasurer.	1 0 0	Inspector	4 0 10	3 5 0
	Stockton-on-Tees,Boro'	—	—	—	—	—	—	—	—	5 0 0
	South Shields, Boro'	3 0 0	—	—	25 1 2	Borough Treasurer.	40 11 6	Borough Treasurer.	68 12 9	72 5 6
	Sunderland, Borough	—	—	—	70 2 4	,,	86 10 7	,,	156 12 11	283 18 0
	Total for County of Durham	16 0 9	0 9 6	—	112 17 1	—	268 14 1	—	398 1 6	543 6 6
Essex	15 Subdivisions of the County, viz.:—									
	No. 1 (Brentwood)	—	—	—	27 3 0	County Treasurer.	—	—	27 3 0	15 0 0
	,, 2	—	—	—	8 11 6	,,	—	—	8 11 6	8 0 0
	,, 3 (Colchester)	—	—	—	3 15 6	,,	—	—	3 15 6	8 0 0
	,, 4 (Dengie)	—	—	—	9 0 7	,,	—	—	9 0 7	8 0 0
	,, 5 (Great Dunmow).	2 0 0	—	—	10 5 4	,,	—	—	12 5 4	8 0 0
	,, 6	0 6 3	—	—	21 10 6	,,	—	—	21 16 9	12 0 0
	,, 7 (Freshwell)	—	—	—	8 13 3	,,	—	—	8 13 3	8 0 0
	,, 8	0 8 6	0 1 4	County Treasurer.	6 13 10	,,	—	—	7 3 8	8 0 0
	,, 9 (Hinckford)	—	—	—	11 9 5	,,	—	—	11 9 5	8 0 0
	,, 10	—	—	—	4 12 3	,,	—	—	4 12 3	8 0 0
	,, 11 (Rochford)	0 10 6	—	—	12 8 10	,,	—	—	12 19 4	8 0 0
	,, 12 (Tendring)	0 16 0	—	—	16 7 10	,,	—	—	17 3 10	8 0 0
	,, 13 (Walden)	—	—	—	7 10 2	,,	—	—	7 10 2	8 0 0
	,, 14 (Witham)	0 6 0	—	—	10 19 4	,,	—	—	11 5 4	8 0 0
	,, 15 (Orsett)	—	—	—	9 4 2	,,	—	—	9 4 2	8 0 0

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain.—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Essex—*cont.*	Colchester, Borough	0 4 6	—	—	3 9 4	Borough Treasurer.	—	—	3 13 10	50 0 0
	Maldon, Borough -	No return made.								
	Harwich, Borough -	—	—	—	1 4 4	Borough Treasurer.	—	—	1 4 4	—
	Havering-atte-Bower, Liberty of.	—	—	—	3 12 8	„	—	—	3 12 8	7 0 0
	Saffron Walden, Borough.	—	—	—	4 8 9	Justices' Clerk.	—	—	4 8 9	4 8 9
	Wetherfield, Manor -	No Standards in use.								
	Total for County of Essex -	4 11 9	0 1 4	—	181 0 10	—	—	—	185 13 11	192 8 9
Gloucestershire.	8 Subdivisions of the County, viz.:—									
	Bristol - -	—	—	—	8 9 10	County Treasurer.	—	—	8 9 10	5 8 0
	Cheltenham - -	6 1 6	—	—	12 1 7	„	—	—	18 3 1	10 5 6
	Cirencester - -	—	—	—	2 12 4	„	—	—	2 12 4	1 10 0
	Dursley - -	—	—	—	7 5 6	„	—	—	7 5 6	5 17 0
	Forest - - -	—	—	—	4 7 6	„	—	—	4 7 6	1 10 6
	Gloucester - -	—	—	—	2 6 6	„	—	—	2 6 6	0 18 0
	Stroud - -	—	—	—	7 13 5	„	—	—	7 13 5	4 5 7
	Stow-in-the-Wold	—	—	—	8 14 7	„	—	—	8 14 7	9 15 0
	Cheltenham, Borough	—	—	—	—	—	—	—	—	—
	Cirencester, Town and Borough.	No return made.								
	Gloucester, City and County of a City and Borough.	—	—	—	10 18 3	City Treasurer.	—	—	10 18 3	10 0 0
	Tewkesbury, Borough	—	—	—	0 19 10	Borough Treasurer.	—	—	0 19 10	5 0 0
	Wootton-under-Edge, Town.	No return made.								
	Bisley, Manor - -	Transferred to County.								
	Churchdown, Manor									
	Cirencester, 7 Hundreds of.									
	Hempstede, Manor -									
	Presbury, Manor -									
	Stow-in-the-Wold, Manor.									
	Netherswell, Manor -									
	Total for County of Gloucester -	6 1 6	—	—	65 9 4	—	—	—	71 10 10	54 9 7
Hants -	14 Subdivisions of the County.	Nothing stated.								
	Andover, Borough -	—	—	—	—	—	—	—	—	—
	Basingstoke, Town -	0 13 9	—	—	1 0 7	Inspector	—	—	1 14 4	—
	Newport, Isle of Wight, Borough.	Transferred to County.								
	Portsmouth, Borough	6 12 0	0 15 2	Borough Treasurer.	2 5 10	Borough Treasurer.	-	—	9 13 0	Not stated.
	Ryde, Isle of Wight, Town.	No return made.								
	Southampton, Borough	No return made.								
	Winchester, City -	No return made.								
	Stockbridge, Borough and Manor.	No return made.								
	Total for County of Hants -	7 5 9	0 15 2	—	3 6 5	—	—	—	11 7 4	—
Hereford	9 Subdivisions of the County.	—	—	—	27 9 4	County Treasurer.	—	—	27 9 4	6 8 6
	Hereford, City and Borough.	—	—	—	—	—	—	—	—	65 0 0
	Leominster, Borough	—	—	—	0 18 0	Borough Treasurer.	—	—	0 18 0	20 13 6
	Total for County of Hereford -	—	—	—	28 7 4	—	—	—	28 7 4	92 2 0
Herts -	- - - - -	3 3 6	—	—	0 16 4	County Treasurer.	—	—	3 19 10	—
	BishopStortford, Town	No return made.								
	HemelHempsted, Town	No return made.								
	Hertford, Borough -	0 10 0	0 1 0	—	2 10 6	Inspector	—	—	3 1 6	2 10 6
	Hitchin, Town -	No return made.								
	St. Albans, Borough	1 15 0	—	—	2 10 9	Inspector	3 10 6	Tradesman employed.	7 16 3	6 1 3
	Cheshunt, Manor -	—	—	—	—	—	—	—	—	—
	Total for County of Herts -	5 8 6	0 1 0	—	5 17 7	—	3 10 6	—	14 17 7	8 11 9

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Hunts	4 Subdivisions of the County.	—	—	—	23 13 10	County Treasurer.	—	—	23 13 10	—
	Huntingdon, Borough	Transferred to County.								
	Total for County of Hunts	—	—	—	23 13 10	—	—	—	23 13 10	—
Kent	17 Subdivisions of the County, viz.:—									
	Ashford	—	—	—	11 5 5	County Treasurer.	—	—	11 5 5	30 0 0
	Aylesford, North (Rochester).	8 14 9	1 11 9	County Treasurer.	4 17 10	„	—	—	15 4 4	43 6 0
	Aylesford, Upper, South.	—	—	—	0 4 8	„	—	—	0 4 8	22 4 0
	Aylesford, Lower, South.	4 0 0	—	—	4 4 11	„	—	—	8 4 11	15 1 0
	Bearsted	51 10 9	0 5 0	County Treasurer.	1 9 10	„	—	—	53 5 7	107 7 9
	Blackheath	2 17 6	—	—	24 2 4	„	—	—	26 19 10	80 0 0
	Bromley	17 8 9	0 18 9	County Treasurer.	5 3 2	„	—	—	23 10 8	45 0 9
	Cranbrook, Scray	2 18 0	0 7 6	„	5 0 1	„	—	—	8 5 7	25 16 0
	Dartford	3 7 6	0 2 11	„	2 18 11	„	—	—	6 9 4	17 7 6
	Faversham	—	0 4 4	„	4 14 8	„	—	—	4 19 0	43 18 6
	Home Division, of St. Augustine.	4 12 9	0 5 4	„	7 5 8	„	—	—	12 3 9	34 6 0
	Isle of Sheppey	—	—	„	5 10 1	„	—	—	5 10 1	10 0 0
	Ramsgate (East Kent, Division of)	0 6 6	—	—	1 3 0	„	—	—	1 9 6	6 7 0
	Sevenoaks	12 1 6	1 1 6	County Treasurer.	1 16 0	„	3 10 0	Tradesman employed.	18 9 0	31 5 6
	Shepway, Upper Division.	5 3 9	0 15 0	„	1 8 9	„	—	—	7 7 6	10 10 0
	Tunbridge Wells	0 4 3	—	—	1 4 3	„	—	—	1 8 6	26 15 6
	Wingham	3 12 0	—	—	7 14 2	„	—	—	11 6 2	14 2 0
	Bexley, Parish	Transferred to County.								
	Canterbury, City	—	—	—	4 1 3	City Treasurer.	—	—	4 1 3	15 0 0
	Chatham, Town	No return made.								
	Dartford, Parish	No return made.								
	Deal, Town	—	—	—	—	—	—	—	—	—
	Dover, Borough	No return made.								
	Faversham, Borough	2 5 0	—	—	3 10 0	Borough Treasurer.	6 0 0	Tradesman employed.	11 15 0	26 0 0
	Folkestone, Borough	—	—	—	0 11 4	„	—	—	0 11 4	20 0 0
	Gravesend and Milton, Borough.	—	—	—	1 7 8	„	—	—	1 7 8	—
	Hythe, Borough	—	—	—	—	—	—	—	—	3 0 0
	Lydd, Borough	—	—	—	0 6 10	Borough Treasurer.	—	—	0 6 10	2 2 0
	Maidstone, Borough	—	—	—	19 9 8	„	6 1 7	Borough Treasurer.	25 11 3	4 0 0
	Queenboro', Borough	—	—	—	—	—	—	—	—	5 0 0
	Ramsgate, Town	—	—	—	1 0 3	Borough Treasurer.	—	—	1 0 3	10 0 0
	Rochester, City	0 1 0	0 3 0	½ City Treasurer, ½ Inspector.	2 3 10	City Treasurer.	—	—	2 7 10	25 1 6
	Romney, New, Borough.	—	—	—	0 1 11	Borough Treasurer.	0 9 5	Inspector	0 11 4	6 15 5
	Sandwich, Borough	—	—	—	0 15 6	„	—	—	0 15 6	10 0 0
	Sheppey, Parish of Minster in.	Transferred to County.								
	Tenterden, Borough	—	—	—	—	—	—	—	—	4 0 0
	Woolwich, Parish of St. Mary.	—	—	—	—	—	—	—	—	—
	Brasted, Manor	—	—	—	—	—	—	—	—	—
	Lewisham, Manor	—	—	—	—	—	—	—	—	—
	Swancombe, Manor	No return made.								
	Total for County of Kent	119 4 0	5 15 1	—	123 12 0	—	16 1 0	—	264 12 1	694 6 5
Lancaster	17 Subdivisions of the County, viz.:—									
	Ashton-under-Lyne	3 5 6	0 6 10	County Treasurer.	10 2 8	County Treasurer.	14 11 3	County Treasurer.	28 6 3	41 13 10
	Bacup	4 7 0	—	—	12 12 11	„	16 16 4	„	33 16 3	40 12 2
	Blackburn, Higher	8 10 0	0 1 3	County Treasurer.	48 19 6	„	29 11 3	„	87 2 0	43 13 9
	Blackburn, Lower	21 6 0	0 2 0	„	29 9 9	„	29 3 9	„	80 1 6	42 13 6
	Bolton	12 19 0	0 10 0	„	10 16 3	„	11 15 3	„	36 0 7	40 14 3
	Bury	15 0 0	—	—	27 14 11	„	37 15 6	„	80 10 5	39 12 6
	Garstang	8 12 6	—	County Treasurer.	6 2 11	„	7 16 8	„	22 12 1	39 2 6
	Kirkdale	17 0 6	—	—	10 17 5	„	13 13 11	„	41 11 10	40 14 3

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Lancaster —*cont.*	17 Subdivisions of the County—*cont.*									
	Kirkham	7 17 0	0 1 9	County Treasurer.	7 19 10	County Treasurer.	7 17 6	County Treasurer.	23 16 1	40 0 7
	Leyland	13 14 0	—	—	9 17 11	„	10 17 5	„	34 9 4	39 2 6
	Lonsdale, North	0 18 6	—	County Treasurer.	12 15 2	„	12 12 0	„	26 5 8	39 2 6
	Lonsdale, South	0 10 0	—	„	9 5 3	„	7 6 4	„	17 1 7	40 9 8
	Manchester	46 7 6	0 12 4	„	16 2 0	„	18 11 0	„	81 12 11	69 2 6
	Ormswick	6 17 6	—	—	16 15 2	„	20 16 8	„	44 9 4	42 0 1
	Prescot	44 11 0	0 8 1	County Treasurer.	18 8 3	„	—	„	63 7 4	91 8 0
	Rochdale	8 12 6	—	—	13 9 4	„	17 10 6	„	39 12 4	41 10 8
	Warrington	3 1 0	—	—	16 6 5	„	52 0 0	Inspector's Assistants.	71 7 5	142 0 0
	Ashton-under-Lyne, Borough.	0 14 0	—	—	16 17 2	Borough Treasurer.	25 14 11	Borough Treasurer.	43 6 1	16 0 0
	Accrington, Town	No return made.								
	Blackburn, Borough	3 7 6	—	—	33 3 6	Borough Treasurer.	25 0 8	Borough Treasurer.	61 11 8	37 0 0
	Bolton, Borough	1 15 0	—	—	31 3 3	„	37 18 11	„	70 17 2	98 8 0
	Clitheroe, Borough	—	—	—	5 5 6	Inspector	2 7 3	Tradesman employed.	7 12 9	7 12 9
	Lancaster, Borough	No return made.								
	Liverpool, Borough	116 10 0	—	—	297 16 7	Borough Treasurer.	309 7 6	Borough Treasurer.	723 14 1	1,088 8 4
	Manchester, Borough	178 5 0	1 7 0	City Treasurer.	214 19 5	„	326 3 8	„	720 15 1	1,042 19 0
	Oldham, Borough	—	—	—	29 3 7	„	29 2 8	„	58 6 4	—
	Preston, Borough	—	—	—	28 19 2	„	9 0 0	„	37 19 2	50 0 0
	Salford, Borough	20 0 0	20 0 0	Borough Treasurer.	17 4 7	„	30 14 4	„	87 18 11	219 10 8
	Warrington, Borough	0 6 6	0 6 4	„	13 14 3	„	16 4 1	„	30 11 2	13 0 0
	Wigan, Borough	—	—	—	12 10 0	Inspector	18 0 0	Inspector	30 10 1	30 10 1
	Bury Market, Borough	—	—	—	—	—	—	—	—	—
	Manchester, Manor	Transferred to Borough of Manchester.								
	Rochdale, Manor	No return made.								
	Total for County of Lancaster	544 7 6	23 15 7	—	978 12 8	—	1,138 9 4	—	2,685 5 6	3,477 2 1
Leicestershire.	7 Subdivisions of the County, viz.:—									
	1. District	0 17 3	—	—	0 18 2	County Treasurer.	—	—	1 15 5	2 13 0
	2. „	2 1 0	—	—	1 17 5	„	—	—	3 18 5	6 16 10
	3. „	0 11 0	—	—	5 11 2	„	—	—	6 2 2	3 1 2
	4. „	3 8 6	—	—	1 13 8	„	—	—	5 2 2	4 17 2
	5. „	1 0 0	—	—	0 11 0	„	—	—	1 11 0	2 11 2
	6. „	1 0 6	—	—	1 2 3	„	—	—	2 2 9	1 3 2
	7. „	14 0 6	—	—	4 0 11	„	—	—	18 1 5	4 7 6
	Leicester, Borough	4 13 6	—	—	7 8 0	Borough Treasurer.	—	—	12 1 6	70 0 0
	Total for County of Leicester	27 12 3	—	—	23 2 7	—	—	—	50 14 10	95 10 0
Lincoln	The County divided into 3 Ridings or Parts:—									
	I. Parts of Lindsay, comprising 8 Districts of the County.	2 2 9	0 3 9	County Treasurer.	77 8 9	County Treasurer.	—	—	79 15 3	82 17 0
	II. Parts of Holland, comprising 2 Districts of the County.	1 13 3	—	—	16 16 11	„	—	—	18 10 2	42 0 0
	III. Parts of Kesteven, comprising 4 Districts of the County.	5 8 0	0 1 7	County Treasurer.	10 8 3	„	2 12 6	Tradesman employed.	18 10 5	50 12 6
	Boston, Borough	0 5 0	—	—	3 17 11	Borough Treasurer.	—	—	4 2 11	20 5 0
	Grantham, Borough	3 5 4	—	—	—	—	5 2 11	Borough Treasurer.	8 8 3	3 5 4
	Great Grimsby, Boro'	No return made.								
	Lincoln, City and County of City.	0 11 0	—	—	12 10 2	Borough Treasurer.	3 0 0	Tradesman employed.	16 1 2	33 0 0
	Louth, Borough	—	—	—	19 13 6	„	10 15 2	Borough Treasurer.	30 8 8	2 0 0
	Spalding, Borough	0 4 0	0 4 0	Borough Treasurer.	8 15 9	„	—	—	9 3 9	24 0 0
	Stamford, Borough	—	—	—	—	—	—	—	—	—
	Alford, Manor	Transferred to County.								
	Total for County of Lincoln	13 9 4	0 9 4	—	149 11 3	—	21 10 7	—	185 0 7	257 19 10

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
Middlesex	4 Subdivisions of the County, viz.:—	£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
	1. Tower Hamlets	229 0 0	18 0 0	County Treasurer, Inspector.	135 10 0	County Treasurer.	—	—	388 0 0	272 0 0
	2. Clerkenwell -	78 6 3	8 9 0	County Treasurer.	78 7 10	„	—	—	165 3 1	228 6 3
	3. Bloomsbury -	50 18 9	27 16 2	County Treasurer, Inspector.	76 2 0	„	—	—	154 16 11	214 16 10
	4. Brentford -	40 0 0	—	—	8 3 10	„	—	—	47 14 4	279 10 6
	Chelsea, Parish of St. Luke.	Transferred to County.								
	Islington, Parish of St. Mary.	No return made.								
	Kensington, Parish of St. Mary Abbotts.	Transferred to County.								
	Founders' Company -	—	—	—	—	—	—	—	—	—
	London, City - -	18 3 6	—	—	271 13 1	City Chamberlain.	—	—	289 16 7	440 14 0
	Metropolitan Board of Works.	—	—	—	—	—	—	—	—	—
	Paddington, Parish of St. Mary.	6 2 6	—	—	—	—	—	—	6 2 6	—
	St. Marylebone, Parish	17 9 6	—	—	14 2 7	Treasurer of the Parish.	—	—	31 12 1	35 12 9
	St. Pancras, Parish -	27 18 6	—	—	17 19 7	Master of Workhouse and Directors.	9 9 1	Tradesman employed.	55 7 2	9 9 1
	Tower of London, Liberty.	10 0 0	2 0 7	Inspector	2 1 10	Inspector	—	—	14 2 5	14 2 5
	Westminster, City and Liberty.	56 8 6	9 6 0	City Treasurer.	36 6 6	½ to High Steward, ½ to Stamping Officer.	—	—	93 4 6	141 3 3
	St. John of Jerusalem, Parish.	Transferred to County.								
	Savoy, Parish - -	Transferred to County.								
	The Rolls, Liberty of	Transferred to County.								
	Heston, Parish (Manor of Isleworth).	Transferred to County.								
	Isleworth, Parish (Manor of Isleworth).	Transferred to County.								
	Twickenham, Parish (Manor of Isleworth).	Transferred to County.								
	Total for County of Middlesex -	534 7 6	65 11 9	—	640 7 3	—	9 9 1	—	1,245 19 7	1,635 15 1
Monmouthshire.	County of Monmouth	—	—	—	16 4 7	Inspector	—	—	16 4 7	91 4 7
	Monmouth, Borough	No return made.								
	Newport, Borough -	1 0 0	0 4 0	Inspector	10 1 8	Borough Treasurer.	21 16 6	Inspector	33 2 2	32 0 6
	Total for County of Monmouth	1 0 0	0 4 0	—	26 6 3	—	21 16 6	—	49 6 9	123 5 1
Norfolk	15 Subdivisions of the County, viz.:—									
	Acle - - -	—	—	—	0 0 6	County Treasurer.	—	—	0 0 6	—
	Aylsham - -	—	—	—	0 9 0	„	—	—	0 9 0	—
	Dereham - -	—	—	—	0 19 1	Inspector	—	—	0 19 1	—
	Docking - -	—	—	—	—	—	—	—	—	—
	Downham - -	—	—	—	1 16 1	County Treasurer.	—	—	1 16 1	—
	Harling - -	0 7 0	—	—	0 8 9	„	—	—	0 15 9	—
	Holt - - -	0 2 6	—	—	0 7 3	„	0 0 8	County Treasurer.	0 10 5	5 1 11
	Loddon - -	—	—	—	0 4 10	„	—	—	0 4 10	—
	Norwich - -	3 4 0	—	—	0 2 3	„	—	—	3 6 3	—
	N. Walsham -	—	—	—	—	—	—	—	—	—
	Pulham - -	—	—	—	0 18 10	County Treasurer.	—	—	0 18 10	—
	Swaffham - -	—	—	—	1 10 9	„	—	—	1 10 9	—
	Torrington - -	2 7 0	—	—	0 8 0	„	—	—	2 15 0	—
	Walsingham -	0 9 11	—	—	1 5 4	„	—	—	1 15 3	6 4 0
	Wymondham -	—	—	—	0 1 1	Inspector	—	—	0 1 1	7 0 0
	Buckenham, New, Borough.	—	—	—	—	—	—	—	—	—
	King's Lynn, Borough	No return made.								
	Norwich, City and County of City.	38 12 9	0 2 6	City Treasurer.	60 19 5	City Treasurer.	—	—	99 14 8	165 4 8
	Thetford, Borough -	—	—	—	—	—	—	—		6 0 0

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Norfolk —*cont.*	Walsham, North, Parish.	Transferred to County.								
	Yarmouth, Borough -	—	—	—	6 4 9	Inspector	2 14 9	Inspector	8 19 6	23 19 6
	Total for County of Norfolk -	45 3 2	0 2 6	—	75 15 11	—	2 15 5	—	123 17 0	213 10 1
Northampton.	County of Northampton.	49 18 7	—	—	65 19 8	County Treasurer.	—	—	115 18 3	53 2 10
	Daventry, Borough -	No return made.								
	Higham Ferrers, Boro'	No return made.								
	Northampton, Boro'	13 9 6	1 3 0	Borough Treasurer.	11 3 2	Borough Treasurer.	7 12 4	Tradesman employed.	33 8 0	7 12 4
	Peterborough, Liberty of.	2 0 0	2 13 0	City Treasurer.	12 2 1	City Treasurer.	—	—	16 15 1	17 9 0
	Total for County of Northampton	65 8 1	3 16 0	—	89 4 11	—	7 12 4	—	166 1 4	78 4 2
Northumberland.	6 Subdivisions of the County, viz.:—									
	Castle Ward, East -	—	—	—	9 2 10	County Treasurer.	—	—	9 2 10	15 0 0
	Castle Ward, West	—	—	—	19 0 2	„	—	—	19 0 2	15 0 0
	Coquetdade Ward, &c.	1 7 6	0 2 6	County Treasurer.	5 5 3	„	3 0 0	Inspector	9 15 3	18 0 0
	Morpeth Ward, &c.	—	—	—	19 17 8	„	—	—	19 17 8	4 18 10
	Norham Ward, &c.	0 12 6	0 0 3	County Treasurer.	1 14 9	„	—	—	2 7 7	15 12 0
	Tinedale Ward, &c.	—	—	—	9 17 10	„	3 0 0	Inspector	12 17 10	21 0 0
	Berwick-upon-Tweed, County of the Borough and Town.	—	—	—	3 0 0	Inspector	2 0 0	Tradesman employed.	5 0 0	20 0 0
	Newcastle-upon-Tyne, Town and County.	—	—	—	21 9 1	Borough Treasurer.	15 0 0	Inspector	36 9 1	112 5 0
	Tynemouth, Borough	9 7 6	—	—	20 14 5	„	5 0 0	„	35 1 11	29 15 6
	Alnwick, Manor and Borough.	—	—	—	—	—	—	—	—	—
	Corbridge, Prudhoe, and Newburn, Manor and Barony.	—	—	—	—	—	—	—	—	—
	Hexham, Manor -	No return made.								
	Rothbury, Manor -	—	—	—	—	—	—	—	—	—
	Warkworth, &c., Manor and Boro'.	—	—	—	—	—	—	—	—	—
	Total for County of Northumberland	11 7 6	0 2 9	—	110 2 0	—	28 0 0	—	149 12 4	251 11 4
Nottingham.	6 Subdivisions of the County.	2 4 3	0 3 0	County Treasurer.	46 5 11	County Treasurer.	—	—	48 13 2	—
	Newark, Borough -	—	—	—	3 10 3	Borough Treasurer.	—	—	3 10 3	12 0 0
	Nottingham, Town and County of Town.	—	36 7 6	Borough Treasurer.	52 9 4	„	32 4 11	Borough Treasurer.	121 1 9	166 1 0
	Retford, East, Boro' -	Transferred to County.								
	Total for County of Nottingham	2 4 3	36 10 6	—	102 5 6	—	32 4 11	—	173 5 2	178 1 0
Oxfordshire.	County of Oxford -	7 1 0	0 10 0	County Treasurer.	88 3 11	County Treasurer.	—	—	95 14 11	14 16 1
	Banbury, Borough -	—	—	—	0 3 6	Borough Treasurer.	—	—	0 3 6	—
	Chipping Norton, Borough.	No return made.								
	Oxford, University -	—	—	—	7 6 10	Vice-Chancellor.	—	—	7 6 10	40 0 0
	Total for County of Oxford -	7 1 0	0 10 0	—	95 14 3	—	—	—	103 5 3	54 16 1
Rutland -	County - - - -	2 5 0	0 0 9	County Treasurer.	3 13 6	County Treasurer.	7 7 11	Tradesman employed.	13 7 2	16 0 4
	Total for County of Rutland -	2 5 0	0 0 9	—	3 13 6	—	7 7 11	—	13 7 2	16 0 4
Salop -	2 Subdivisions of the County, viz.:—									
	1. North - - -	64 1 2	—	—	26 15 7	County Treasurer.	29 13 10	Inspector	120 10 7	114 13 10
	2. South - -	79 6 0	—	—	19 1 4	„	17 1 10	„	115 9 2	81 3 6
	Bridgnorth, Borough	—	—	—	2 10 8	Borough Treasurer.	1 3 4	Tradesman employed.	3 14 0	6 3 4
	Ludlow, Borough -	0 10 9	—	—	3 4 1	Inspector	19 7	„	4 14 5	4 14 5

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Salop-*cont.*	Oswestry, Borough	—	—	—	1 5 8	Borough Treasurer.	3 6 6	Inspector	4 12 2	6 6 6
	Shrewsbury, Borough	—	—	—	10 2 6	„	17 3 11	Borough Treasurer.	27 6 5	5 0 0
	Wenlock, Borough	10 10 0	—	—	7 9 2	„	12 1 10	Inspector.	30 1 0	33 0 2
	Total for County of Salop	154 7 11	—	—	70 9 0	—	81 10 10	—	306 7 9	251 1 9
Somerset	15 Subdivisions of the County, viz.:—									
	Axbridge	—	—	—	5 10 2	County Treasurer.	—	—	5 10 2	15 0 0
	Bridgewater	—	—	—	0 7 2	„	0 13 7	—	1 0 9	15 13 7
	Dunster	—	—	—	1 14 10	„	2 11 0	Tradesman employed.	4 5 10	17 11 0
	Frome	—	—	—	2 15 11	„	—	—	2 15 11	15 0 0
	Glastonbury	—	—	—	1 1 10	„	—	—	1 1 10	15 0 0
	Ilminster	4 0 0	—	—	1 15 6	„	—	—	5 15 6	15 0 0
	Long Ashton	0 5 0	—	—	0 15 2	„	—	—	1 0 2	15 0 0
	Somerton	0 7 0	—	—	0 10 5	„	—	—	0 17 5	15 0 0
	Taunton	1 18 0	—	—	2 16 9	„	—	—	4 14 9	15 0 0
	Temple Cloud	5 17 6	—	—	2 5 2	„	—	—	8 2 8	15 0 0
	Weston	—	—	—	0 18 5	„	—	—	0 18 5	15 0 0
	Williton	—	—	—	1 0 5	„	2 12 0	Inspector	3 12 5	18 1 0
	Wincanton	—	—	—	1 8 0	„	2 12 7	„	4 0 7	17 12 7
	Wiveliscombe	0 1 3	—	—	0 10 0	„	0 15 0	„	1 6 3	15 15 0
	Yeovil	3 10 0	—	—	0 15 8	„	—	—	4 5 8	15 0 0
	Axbridge, Borough	—	—	—	0 7 11	Borough Treasurer.	—	—	0 7 11	2 2 0
	Bath, City and Boro'	6 18 0	—	—	15 3 9	„	—	—	22 1 9	150 0 0
	Bridgewater, Borough	0 1 0	—	—	6 6 4	„	5 10 0	Inspector	11 17 4	15 10 0
	Bristol, City and Co. of a City.	5 14 3	0 4 4	½ Borough Treasurer, ½ Inspector.	219 7 0	„	440 17 0	Borough Treasurer.	666 2 7	517 8 10
	Glastonbury, Borough	Transferred to County.								
	Wells, Borough	Transferred to County.								
	Yeovil, Borough	0 18 0	—	—	0 7 7	Borough Treasurer.	—	—	1 5 7	4 0 0
	Watchett, Manor and Borough and adjacent Manors.	—	—	—	—	—	—	—	—	—
	Wiveliscombe, Boro' and adjacent Manors.	—	—	—	2 12 10	Portreeves	—	—	2 12 10	—
	Total for County of Somerset	29 10 0	0 4 4	—	268 10 10	—	455 11 2	—	753 16 4	923 14 0
Stafford-shire.	County	80 15 6	21 11 10	—	87 1 3	—	160 12 0	—	377 15 0	630 1 0
	Bilston, Market	No return made.								
	Burslem, Town	No return made.								
	Hanley, Market	—	—	—	—	—	—	—	—	—
	Lichfield, City	No return made.								
	Newcastle-under-Lyne Borough.	2 14 6	—	—	8 11 11	Borough Treasurer.	8 11 11	—	19 18 4	—
	Stafford, Borough	1 6 0	—	—	0 10 7	„	0 14 4	Inspector	2 10 11	6 14 4
	Tamworth, Borough	—	—	—	0 2 1	„	0 5 2	„	0 7 3	2 5 2
	Walsall, Borough	2 1 0	0 3 6	Borough Treasurer.	7 10 1	„	8 11 4	Borough Treasurer.	18 5 11	14 5 11
	Wolverhampton, Borough.	—	—	—	66 7 3	„	13 4 11	„	79 12 2	22 17 11
	Total for County of Stafford	86 17 0	21 15 4	—	170 3 2	—	191 19 8	—	498 9 7	676 4 4
Suffolk	2 Divisions of the County:— East Suffolk, 5 Districts, viz.:—									
	Beccles	0 5 0	—	—	7 13 0	County Treasurer.	—	—	7 18 0	8 8 0
	Yoxford	0 13 0	—	—	6 15 0	„	—	—	7 8 0	7 19 0
	Suffolk	8 2 6	0 8 6	County Treasurer.	7 2 7	„	—	—	15 13 7	12 1 6
	Woodbridge	—	—	—	4 14 6	„	—	—	4 14 6	6 0 0
	Ipswich	—	—	—	8 9 8	„	—	—	8 9 8	6 10 0

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Suffolk—*cont.*	West Suffolk:—									
	Head Quarters, Bury St. Edmund's.	0 17 0	—	—	3 15 9	County Treasurer.	—	—	4 12 9	16 0 0
	Cosford	1 15 0	—	—	21 15 7	„	—	—	23 10 7	16 0 0
	Mildenhall	0 10 0	—	—	13 14 9	„	—	—	14 4 9	16 0 0
	Clare	0 15 0	—	—	22 2 6	„	—	—	22 17 6	16 0 0
	Ixworth	—	—	—	13 1 5	„	—	—	13 1 5	16 0 0
	Aldeburgh, Borough	—	—	—	0 0 5	Borough Treasurer.	0 14 0	Tradesman employed.	0 14 5	2 14 0
	Bury St. Edmund's, Borough.	—	—	—	7 15 6	„	—	—	7 15 6	20 0 0
	Eye, Borough	—	—	—	—	—	—	—	—	—
	Holsworthy, Town	Transferred to County.								
	Ipswich, Borough	—	—	—	6 19 6	Borough Treasurer.	—	—	6 19 6	40 0 0
	Orford, Borough	No return made.								
	Southwold, Town	—	—	—	—	—	—	—	—	—
	Stowmarket, Town	Transferred to County.								
	Sudbury, Borough	—	—	—	5 3 5	Borough Treasurer.	—	—	5 3 5	—
	Total for County of Suffolk	12 17 6	0 8 6	—	129 3 7	—	0 14 0	—	143 3 7	183 12 6
Surrey	11 Subdivisions of the County, viz.:—									
	A. (West), District	282 5 9	15 5 6	County Treasurer.	74 0 5	County Treasurer.	—	—	371 11 8	532 5 9
	A. (East), do.	401 18 3	15 5 6	„	94 11 10	„	—	—	511 5 7	651 18 3
	B., do.	22 19 6	—	—	4 8 3	„	—	—	27 7 9	197 19 6
	C., do.	30 13 6	—	—	9 5 3	„	—	—	39 18 9	255 13 6
	D. (Guildford), do.	3 4 6	—	—	0 18 5	„	—	—	4 2 11	—
	E. (Reigate), do.	1 13 9	—	—	0 19 3	„	—	—	2 13 0	—
	No. 1 (Chertsey), do.	1 1 9	—	—	2 7 2	„	—	—	3 8 11	15 0 0
	„ 2 (Farnham), do.	1 5 0	—	—	2 8 3	„	—	—	3 13 3	—
	„ 3 (Dorking), do.	0 7 9	—	—	0 11 3	„	—	—	0 19 0	—
	„ 4 (Godstone), do.	—	—	—	1 3 7	„	—	—	1 3 7	10 0 0
	„ 5 (Godalming), District.	3 13 3	—	—	0 13 8	„	—	—	4 6 11	—
	Battersea, Parish of	Transferred to County.								
	Camberwell, Parish of St. Giles.	—	—	—	—	—	—	—	—	—
	Clapham, Parish	Transferred to County.								
	Godalming, Borough	Transferred to County.								
	Guildford, Borough	0 0 6	—	—	4 18 1	Borough Treasurer.	—	—	4 18 7	5 0 0
	Kingston, Borough	No return made.								
	Mitcham, Parish	Transferred to County.								
	Southwark, Town and Borough.	Transferred to County.								
	Streatham, Parish	No return made.								
	Croydon, Manor	Transferred to County.								
	Southwark, Manor	Transferred to City of London.								
	Total for County of Surrey	749 3 6	30 11 0	—	196 5 5	—	—	—	975 19 11	1,667 17 0
Sussex	11 Subdivisions of the County, viz.:—									
	Arundel and Worthing.	—	—	—	5 13 6	County Treasurer.	—	—	5 13 6	—
	Battle	1 1 0	—	—	3 11 5	„	—	—	4 12 5	106 9 0
	Chichester	—	—	—	5 8 2	„	—	—	5 8 2	—
	East Grinsted	0 5 0	—	—	7 8 0	„	—	—	7 13 0	25 11 0
	East Sussex (No. 2)	5 0 0	—	—	3 3 7	„	—	—	8 3 7	47 5 4
	Horsham	—	—	—	3 14 5	„	—	—	3 14 5	—
	Lewes	2 6 7	—	—	27 19 9	„	—	—	30 6 4	107 6 9
	Mansfield	1 0 0	—	—	10 13 4	¾ Inspector, ¼ to County Treasurer.	3 12 6	Tradesman employed.	15 5 10	40 13 6
	Midhurst	—	—	—	2 5 7	„	—	—	2 5 7	—
	Petworth	—	—	—	5 10 5	„	—	—	5 10 5	—
	Steyning	—	—	—	12 3 9	„	—	—	12 3 9	—
	Arundel, Borough	1 0 0	—	—	—	—	—	—	1 0 0	—
	Battle, Town	Transferred to County.								
	Brighton, Borough	0 5 0	—	—	—	—	—	—	0 5 0	110 0 0
	Chichester, City	—	—	—	2 16 8	City Treasurer.	—	—	2 16 8	20 5 4
	Grinsted, East, Town	Transferred to County.								
	Hastings, Borough	0 13 0	—	—	5 17 8	Borough Treasurer.	—	—	6 10 8	35 19 0
	Pevensey, Liberty of	0 0 9	—	—	0 15 0	Inspector.	—	—	0 15 9	5 3 6
	Rye, Borough	—	—	—	—	—	—	—	—	2 2 0
	Winchelsea, Borough	No return made.								
	Worthing, Town	Transferred to County.								
	Total for County of Sussex	11 11 4	—	—	97 1 3	—	3 12 6	—	112 5 1	500 15 5

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Warwickshire.	5 Hundreds of the County, viz.:—									
	Barlickway	0 10 0	—	—	3 18 3	County Treasurer.	—	—	4 8 3	4 10 11
	Hemlingford, Part 1	3 10 0	—	—	13 16 0	,,	—	—	17 6 0	7 16 6
	,, Part 2	—	—	—	7 3 2	,,	—	—	7 3 2	3 7 6
	Kineton	—	—	—	12 1 7	,,	—	—	12 1 7	4 15 1
	Knightlow	—	—	—	9 12 10	,,	—	—	9 12 10	3 15 0
	Birmingham, Borough	17 8 0	5 0 0	Borough Treasurer.	178 16 7	Borough Treasurer.	133 10 11	Borough Treasurer.	334 15 6	732 18 0
	Coventry, City	—	—	—	1 11 6	,,	12 18 7	Inspector	14 10 1	20 14 5
	Leamington, Parish	0 7 6	—	—	2 0 1	,,	3 11 9	,,	5 19 4	23 11 9
	Stratford-on-Avon, Borough.	—	—	—	2 15 0	Inspector	—	—	2 15 0	2 15 0
	Sutton Coldfield, Royal Town, Manor of.	—	—	—	—	—	—	—	—	—
	Warwick, Borough	—	—	—	1 4 0	Borough Treasurer.	—	—	1 4 0	10 0 0
	Total for County of Warwick	21 15 6	5 0 0	—	232 19 0	—	150 1 3	—	409 15 9	814 4 2
Westmoreland.	County	—	—	—	14 4 9	County Treasurer.	4 15 0	Tradesman employed.	18 19 9	32 18 0
	Kirkby in Kendal, Borough.	Transferred to County.								
	Total for County of Westmoreland	—	—	—	14 4 9	—	4 15 0	—	18 19 9	32 18 0
Wiltshire	9 Subdivisions of the County, viz.:—									
	Bradford	—	—	—	0 18 11	County Treasurer.	—	—	0 18 11	7 7 0
	Chippenham	—	—	—	0 3 6	,,	—	—	0 3 6	10 6 6
	Devizes	0 10 0	—	—	0 11 3	,,	—	—	1 1 3	16 14 0
	Hindon	—	—	—	0 1 11	,,	—	—	0 1 11	9 5 6
	Malmesbury	0 1 6	—	—	0 8 4	,,	—	—	0 9 10	9 16 0
	Marlborough	—	—	—	0 7 5	,,	—	—	0 7 5	10 3 0
	Salisbury	0 5 0	0 0 8	County Treasurer.	0 11 0	,,	—	—	0 16 8	17 10 0
	Swindon	—	—	—	0 13 9	,,	—	—	0 13 9	9 2 0
	Warminster	—	—	—	1 8 6	,,	—	—	1 8 6	14 19 0
	Devizes, Borough	No return made.								
	Marlborough, Borough	—	—	—	0 6 2	Borough Treasurer.	—	—	0 6 2	—
	Sarum, New, City and Borough.	5 0 0	—	—	4 15 10	City Treasurer.	—	—	9 15 10	26 10 11
	Aldborne, Manor	No return made.								
	Trowbridge, Manor	Transferred to County.								
	Total for County of Wilts	5 16 6	0 0 8	—	10 6 7	—	—	—	16 3 9	131 13 11
Worcestershire.	10 Subdivisions of the County, viz.:—									
	1. Bromsgrove	0 1 2	—	—	1 1 7	County Treasurer.	—	—	1 2 9	0 16 0
	2. Dudley, including the Borough.	4 13 0	0 19 4	Borough Treasurer.	25 15 2	Borough Treasurer.	—	—	31 7 6	—
	3. Halesowen	0 16 0	—	—	4 8 11	County Treasurer.	—	—	5 4 11	1 5 6
	4. Hundred House and Tenbury.	3 9 0	—	—	1 7 4	,,	0 6 0	Inspector	5 2 4	1 10 6
	5. Northfield	2 3 6	—	—	2 0 1	,,	—	—	4 3 7	0 16 0
	6. Pershore	0 13 6	—	—	5 18 8	,,	—	—	6 12 2	2 0 0
	7. Stourbridge	0 1 0	0 1 8	County Treasurer.	7 8 7	,,	—	—	7 11 3	—
	8. Stourport	—	—	—	0 14 10	,,	—	—	0 14 10	—
	9. Upton	5 18 0	—	—	4 4 7	,,	—	—	10 2 7	—
	10. Worcester (No. 1)	4 0 0	—	—	8 10 3	,,	0 6 5	Inspector	12 16 8	1 10 4
	Bewdley, Borough	Transferred to County.								
	Droitwich, Borough	0 1 0	—	—	0 6 10	Borough Treasurer.	5 19 2	Inspector	6 7 0	15 19 2
	Dudley, Parish and Borough.	Transferred to County.								
	Evesham, Borough	Transferred to County.								
	Kidderminster, Boro'	0 10 9	—	—	8 19 2	Borough Treasurer.	—	—	9 9 11	—
	Stourbridge, Town	Transferred to County.								
	Worcester, City	—	—	—	7 19 9	Borough Treasurer.	6 10 0	Tradesman employed.	14 9 9	26 10 0
	Cutsdam, Manor	No returns made.								
	Evesham, Manor									
	Total for County of Worcester	22 6 11	1 1 0	—	78 15 9	—	13 1 7	—	115 5 3	50 7 6

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Yorkshire	East Riding	—	—	—	45 4 8	County Treasurer.	—	—	45 4 8	196 11 10
	North Riding	1 10 10	0 0 6	County Treasurer.	37 18 7	„	4 14 10	Tradesman employed.	44 4 9	17 11 2
	Bradford, Borough	—	—	—	—	—	—	—	—	—
	Beverley, Borough	1 0 6	—	—	7 2 10	Borough Treasurer.	—	—	8 3 4	15 0 0
	Doncaster, Borough	—	—	—	12 10 10	Inspector	10 5 4	Inspector	22 16 2	22 16 2
	Hedon, Borough	Transferred to County.								
	Halifax. See Wakefield, Manor.									
	Hull. See Kingston-on-Hull.									
	Kingston-on-Hull, Borough.	—	—	—	14 7 2	Borough Treasurer.	—	—	14 7 2	60 0 0
	Leeds, Borough	1 0 0	0 5 0	Borough Treasurer.	69 12 9	„	126 2 6	Borough Treasurer.	197 0 3	224 8 0
	Middlesboro', Boro'	11 16 6	—	—	17 14 8	„	—	—	29 11 2	6 15 11
	Pontefract, Borough	0 5 0	—	—	6 9 6	„	9 5 3	Borough Treasurer.	15 19 9	7 5 3
	Richmond, Borough	—	—	—	—	—	—	—	—	—
	Ripon, Borough and Liberty.	—	—	—	0 17 0	Borough Treasurer.	0 13 3	Inspector	1 10 3	0 13 3
	Scarborough, Borough	—	—	—	2 10 1	„	—	—	2 10 1	33 4 0
	Sheffield, Borough	114 15 0	2 2 7	Borough Treasurer.	277 9 0	„	206 3 1	Borough Treasurer.	600 9 8	613 9 7
	Sheffield, Town	No return made.								
	York, City	—	—	—	4 18 0	City Treasurer.	5 0 0	Inspector	9 18 0	25 0 0
	Burlington, Manor	Transferred to County.								
	Eccleshall Bierlow, Manor.	Transferred to Borough of Sheffield.								
	Honley, &c., Manor	No Standards kept.								
	Leeds, Kirkgate, &c., Manor.	—	—	—	—	—	—	—	—	—
	Wakefield, Manor, and Town of Halifax.	No return made.								
	Total for County of York	130 7 10	2 8 1	—	496 15 1	—	362 4 3	—	991 15 3	1,222 15 2

WALES.

Anglesea	County	—	—	—	—	—	40 2 7	County Treasurer.	40 2 7	19 3 4
	Total for County of Anglesea	—	—	—	—	—	40 2 7	—	40 2 7	19 3 4
Brecon	County	6 18 9	—	—	—	—	—	—	6 18 9	33 3 7
	Brecon, Borough	—	—	—	1 1 9	Inspector	—	—	1 1 9	6 1 9
	Total for County of Brecon	6 18 9	—	—	1 1 9	—	—	—	8 0 6	39 5 4
Carmarthen.	County	—	—	—	—	—	—	—	—	—
	Carmarthen, County of Borough.	No return made.								
	Kidwelly, Borough	0 1 0	—	—	0 6 0	Inspector	—	—	0 7 0	3 6 0
	Llanelly, Parish	Transferred to County.								
	Total for County of Carmarthen	0 1 0	—	—	0 6 0	—	—	—	0 7 0	3 6 0
Cardigan	County	—	—	—	3 19 4	County Treasurer.	—	—	3 19 4	3 16 6
	Total for County of Cardigan	—	—	—	3 19 4	—	—	—	3 19 4	3 16 6
Carnarvon.	County	—	—	—	31 9 9	County Treasurer.	—	—	31 9 9	15 18 9
	Pwllheli, Borough	No return made.								
	Total for County of Carnarvon	—	—	—	31 9 9	—	—	—	31 9 9	15 18 9
Denbigh	County	7 11 8	—	—	21 5 6	County Treasurer.	26 14 5	Inspector	55 11 7	26 14 5
	Denbigh, Borough	Transferred to County.								
	Total for County of Denbigh	7 11 8	—	—	21 5 6	—	26 14 5	—	55 11 7	26 14 5

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Flint -	3 Subdivisions of the County, viz.:—									
	Holywell - -	1 13 3	—	—	10 7 8	County Treasurer.	—	—	12 0 11	12 18 8
	Mold - - -	3 9 6	—	—	6 18 8	„	—	—	10 8 2	11 8 8
	Overton - -	0 3 0	—	—	1 19 2	„	—	—	2 2 2	5 8 8
	Flint, Borough -	No return made.								
	Total for County of Flint - -	5 5 9	—	—	19 5 6	—	—	—	24 11 3	29 16 0
Glamorgan.	4 Subdivisions of the County, viz.:—									
	Merthyr - -	—	—	—	21 7 5	County Treasurer.	18 14 0	Inspector	40 1 5	37 16 0
	Newbridge - -	—	—	—	9 13 10	„	13 4 6	„	22 18 4	25 2 6
	Ogmore - -	—	—	—	1 6 9	„	1 11 0	„	2 17 9	5 11 0
	Swansea - -	—	—	—	8 4 3	„	18 17 7	„	27 2 10	27 12 1
	Cardiff, Borough -	Transferred to County.								
	Swansea, Borough -	—	—	—	—	—	—	—	—	37 14 0
	Total for County of Glamorgan	—	—	—	40 12 3	—	52 7 1	—	93 0 4	133 15 7
Merioneth.	County - - -	—	—	—	7 7 1	County Treasurer.	6 15 2	County Treasurer.	14 2 3	22 14 5
	Total for County of Merioneth -	—	—	—	7 7 1	—	6 15 2	—	14 2 3	22 14 5
Montgomery.	County - - -	14 3 0	—	—	9 9 5	County Treasurer.	22 16 6	County Treasurer.	46 8 11	63 9 5
	Total for County of Montgomery	14 3 0	—	—	9 9 5	—	22 16 6	—	46 8 11	63 9 5
Pembroke	County - - -	—	—	—	—	—	—	—	—	5 5 0
	Haverfordwest, Town and County of.	—	—	—	2 4 5	County Treasurer.	—	—	2 4 5	6 0 0
	Tenby, Borough -	—	—	—	—	—	—	—	—	—
	Total for County of Pembroke -	—	—	—	2 4 5	—	—	—	2 4 5	11 5 0
Radnor -	County - - -	—	—	—	—	—	—	—	—	—
	Rhayader, Borough -	No return made.								
	Total for County of Radnor -	—	—	—	—	—	—	—	—	—

SCOTLAND.

Aberdeen	3 Districts of the County, viz.:—									
	1. Aberdeen -	—	—	—	14 10 6	Clerk of Supply.	13 1 6	Clerk of Supply.	27 12 0	31 14 5
	2. Peterhead -	—	—	—	13 15 3	„	10 18 3	„	24 13 6	27 19 4
	3. Inverarie - -	—	—	—	14 7 8	„	11 17 1	„	26 4 9	27 5 9
	Aberdeen, Royal Burgh.	2 5 0	—	—	18 5 9	Weights to City Chamberlain, measures to Inspector = 4*d.* 1*s.* 9*d.*	14 15 10	Inspector	35 6 7	71 9 0
	Total for County of Aberdeen -	2 5 0	—	—	60 19 2	—	50 12 8	—	113 16 11	158 8 7
Argyll -	County - - -	0 10 0	0 10 0	Procurator Fiscal.	0 18 7	Inspector	—	—	1 18 7	5 19 4
	Campbelltown, Royal Burgh.	—	—	—	—	—	—	—	—	—
	Oban, Burgh - -	No return made.								
	Total for County of Argyll -	0 10 0	0 10 0	—	0 18 7	—	—	—	1 18 7	5 19 4
Ayr - -	County - - -	11 12 6	—	—	37 2 5	Clerk of Supply.	—	—	48 14 11	48 11 2
	Ayr, Royal Burgh -	No return made.								
	Irvine, Royal Burgh	—	—	—	1 9 10	Inspector	0 9 4	Inspector	1 19 2	7 19 2
	Kilmarnock, Burgh -	—	—	—	9 13 3	Borough Treasurer.	—	—	9 13 3	5 4 0
	Total for County of Ayr - -	11 12 6	—	—	48 5 6	—	0 9 4	—	60 7 4	61 14 4

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Berwick	County	—	—	—	2 1 2	County Treasurer.	—	—	2 1 2	41 10 0
	Lander, Royal Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Berwick	—	—	—	2 1 2	—	—	—	2 1 2	41 10 0
Banff	County	—	—	—	1 11 5	Inspector	0 10 3	Inspector	2 1 9	2 1 9
	Banff, Royal Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Banff	—	—	—	1 11 5	—	0 10 3	—	2 1 9	2 1 9
Bute	County	—	—	—	—	—	1 15 3	Tradesman employed.	1 15 3	16 15 3
	Rothsay, Royal Burgh	—	—	—	—	—	1 6 6	Burgh Treasurer.	1 6 6	13 10 0
	Total for County of Bute	—	—	—	—	—	3 1 9	—	3 1 9	30 5 3
Caithness	County	0 7 6	—	—	5 1 11	County Treasurer.	3 16 9	Tradesman employed.	9 6 2	17 7 3
	Wick, Royal Burgh	No Standards in use.								
	Total for County of Caithness	0 7 6	—	—	5 1 11	—	3 16 9	—	9 6 2	17 7 3
Clackmannan.	County	No return made.								
	Total for County of Clackmannan	—	—	—	—	—	—	—	—	—
Cromarty	County	—	—	—	1 3 4	County Treasurer.	0 12 8	Inspector	1 16 0	15 12 8
	Total for County of Cromarty	—	—	—	1 3 4	—	0 12 8	—	1 16 0	15 12 8
Dumbarton.	County	—	—	—	18 0 0	Inspector	33 0 0	Inspector	51 0 0	66 0 0
	Dumbarton, Royal Burgh.	—	—	—	12 5 8	„	—	—	12 5 8	14 5 8
	Total for County of Dumbarton	—	—	—	30 5 8	—	33 0 0	—	63 5 8	80 5 8
Dumfries	County	—	—	—	8 5 4	County Treasurer.	6 2 10	County Treasurer.	14 8 2	16 15 9
	Annan, Royal Burgh	No return made.								
	Dumfries, Royal Burgh.	—	—	—	14 9 0	Burgh Treasurer.	9 16 7	Burgh Treasurer.	24 5 7	17 0 0
	Sanquhar, Royal Burgh.	No return made.								
	Total for County of Dumfries	—	—	—	22 14 4	—	15 19 5	—	38 13 9	33 15 9
Edinburgh	County	—	—	—	23 3 9	County Treasurer.	31 13 9	Inspector	54 17 6	106 13 9
	Edinburgh, City	13 17 0	—	—	64 8 0	City Treasurer.	115 10 9	City Treasurer.	193 15 9	380 7 9
	Leith, Burgh	—	—	—	27 16 8	Inspector	27 16 8	Inspector	55 13 4	55 13 4
	Total for County of Edinburgh	13 17 0	—	—	115 8 5	—	175 1 2	—	304 6 7	542 14 10
Elgin	County	—	—	—	0 2 8	Inspector	—	—	0 2 8	5 2 8
	Elgin, Royal Burgh	—	—	—	3 0 7	„	1 7 7	Tradesman employed.	4 8 2	4 8 2
	Total for County of Elgin	—	—	—	3 3 3	—	1 7 7	—	4 10 10	9 10 10
Fife	County	13 11 6	—	—	12 0 6	County Treasurer.	—	—	25 12 0	50 0 0
	Anstruther, East, Royal Burgh.	—	—	—	—	—	—	—	—	—
	Burnt-island, Royal Burgh.	—	—	—	—	—	—	—	—	—
	Crail, Royal Burgh	Transferred to County.								
	Cupar, Royal Burgh	Transferred to County.								
	Dunfermline, Royal Burgh.	—	—	—	2 4 1	Inspector	—	—	2 4 1	2 4 1
	Inverkeithing, Royal Burgh.	—	—	—	—	—	—	—	—	0 18 0
	Kinghorn, Royal Burgh	Transferred to County.								

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Fife—*cont.*	Kirkcaldy, Royal Burgh.	—	—	—	3 9 3	Inspector	—	—	3 9 3	3 9 3
	Pittenweem, Royal Burgh.	No record kept.								
	St. Andrews, City and Royal Burgh.	—	—	—	0 15 3	Inspector	—	—	0 15 3	4 19 3
	Total for County of Fife	13 11 6	—	—	18 9 1	—	—	—	32 0 7	61 10 7
Forfar	County	—	—	—	5 0 6	County Treasurer.	—	—	5 0 6	15 8 0
	Arbroath, Royal Burgh.	—	—	—	6 4 4	Inspector	—	—	6 4 4	10 12 3
	Brechin, Royal Burgh	—	—	—	—	—	—	—	—	—
	Dundee, Royal Burgh	—	—	—	35 4 4	Inspector	—	—	35 4 4	46 2 9
	Forfar, Royal Burgh	—	—	—	7 0 8	Burgh Treasurer.	—	—	7 0 8	10 0 0
	Montrose, Royal Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Forfar	—	—	—	53 9 10	—	—	—	53 9 10	82 3 0
Haddington.	County	—	—	—	0 16 4	County Treasurer.	0 8 9	Inspector	1 5 1	1 5 1
	Berwick, North, Royal Burgh.	—	—	—	—	—	—	—	—	—
	Dunbar, Royal Burgh	—	—	—	0 17 8	Inspector	—	—	0 17 8	0 17 8
	Total for County of Haddington	—	—	—	1 14 0	—	0 8 9	—	2 2 9	2 2 9
Inverness	County	—	—	—	—	—	—	—	—	—
	Inverness, Royal Burgh.	—	—	—	7 0 0	Inspector	—	—	7 0 0	27 0 0
	Total for County of Inverness	—	—	—	7 0 0	—	—	—	7 0 0	27 0 0
Kirkcudbright.	County	—	—	—	19 3 11	Clerk of Supply.	8 9 6	Clerk of Supply.	27 13 5	15 4 9
	Kirkcudbright, Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Kirkcudbright	—	—	—	19 3 11	—	8 9 6	—	27 13 5	15 4 9
Kincardine.	County	—	—	—	2 4 10	Inspector	3 6 7	Inspector	5 11 5	18 16 8
	Total for County of Kincardine	—	—	—	2 4 10	—	3 6 7	—	5 11 5	18 16 8
Kinross	County	—	—	—	—	—	—	—	—	—
	Total for County of Kinross	—	—	—	—	—	—	—	—	—
Lanark	Divided into 3 Wards: Upper Ward	—	—	—	15 10 10	County Treasurer.	20 13 1	County Treasurer.	36 3 11	4 7 8
	Middle Ward, divided into 4 Districts:—									
	Airdrie	—	—	—	17 7 5	„	19 16 10	„	37 4 3	4 19 9
	Coatbridge	—	—	—	29 19 0	„	31 16 10	„	61 15 10	4 11 4
	Hamilton	—	—	—	23 1 9	„	18 15 4	„	41 17 1	6 5 6
	Wishaw	—	—	—	7 14 9	„	10 2 1	„	17 16 10	—
	Lower Ward	0 15 0	—	—	6 1 9	„	8 10 4	„	15 7 1	2 0 9
	Airdrie, Burgh	—	—	—	5 8 4	Burgh Treasurer.	6 4 1	Burgh Treasurer.	11 12 5	20 4 9
	Calton, Burgh	Transferred to City of Glasgow.								
	Glasgow, City, in 3 Districts and 2 Burghs:—									
	Central District	40 4 0	0 18 0	County Treasurer.	148 17 10	Inspector	49 18 6	Inspector	239 18 4	204 16 4
	Eastern District	6 3 6	—	—	27 0 8	„	15 3 9	„	48 7 11	54 8 5
	Western District	17 15 6	0 8 6	County Treasurer.	112 5 11	„	39 13 2	„	170 3 1	162 15 1
	Calton, Burgh	—	—	—	—	—	—	—	—	—
	Gorbals, Barony	—	—	—	—	—	—	—	—	—
	Lanark, Royal Burgh	—	—	—	—	—	—	—	—	—
	Partick, Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Lanark	64 18 0	1 6 6	—	393 8 3	—	220 14 0	—	680 6 9	464 9 7

Appendix III.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.	£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Linlithgow.	County	No return made.								
	Total for County of Linlithgow	—	—	—	—	—	—	—	—	—
Nairn	Burgh	—	—	—	—	—	—	—	—	—
	Total for County of Nairn	—	—	—	—	—	—	—	—	—
Orkney	County	—	—	—	5 9 10	Inspector	16 4 3	Inspector	21 14 1	31 14 2
	Total for County of Orkney	—	—	—	5 9 10	—	16 4 3	—	21 14 1	31 14 2
Peebles	County	—	—	—	0 18 6	County Treasurer.	—	—	0 18 6	—
	Peebles, Royal Burgh	—	—	—	—	—	0 0 7	Inspector	0 0 7	0 1 11
	Total for County of Peebles	—	—	—	0 18 6	—	0 0 7	—	0 19 1	0 1 11
Perth	County	—	—	—	53 4 9	County Treasurer.	75 19 9	Inspector	129 4 6	140 15 9
	Culross, Royal Burgh	—	—	—	—	—	—	—	—	—
	Perth, City and Burgh	—	—	—	20 0 0	Inspector	—	—	20 0 0	20 0 0
	Total for County of Perth	—	—	—	73 4 9	—	75 19 9	—	149 4 6	160 15 9
Renfrew	County	—	—	—	28 10 1	Inspector	—	—	28 10 1	38 10 9
	Greenock, Burgh	No inspection till 1867.								
	Paisley, Burgh	3 11 6	—	—	14 7 4	Inspector	14 7 4	Inspector	32 6 2	32 6 3
	Pollockshaws, Burgh	—	—	—	—	—	—	—	—	—
	Renfrew, Royal Burgh	—	—	—	0 11 6	Burgh Treasurer.	0 8 5	Inspector	0 19 11	0 8 5
	Total for County of Renfrew	3 11 6	—	—	43 8 11	—	14 15 9	—	61 16 3	71 5 5
Ross	County	—	—	—	14 0 8	County Treasurer.	2 19 0	County Treasurer.	16 19 8	5 4 11
	Tain, Royal Burgh	—	—	—	3 7 11	Inspector	0 12 7	Inspector	4 0 6	4 0 6
	Total for County of Ross	—	—	—	17 8 7	—	3 11 7	—	21 0 2	9 5 5
Roxburgh	County	17 8 6	—	—	11 10 6	County Treasurer.	21 0 4	County Treasurer.	49 19 4	82 5 11
	Total for County of Roxburgh	17 8 6	—	—	11 10 6	—	21 0 4	—	49 19 4	82 5 11
Selkirk	County and Royal Burgh.	—	—	—	1 15 8	County Treasurer.	2 0 0	Inspector	3 15 8	8 13 9
	Total for County of Selkirk	—	—	—	1 15 8	—	2 0 0	—	3 15 8	8 13 9
Stirling	County	—	—	—	3 8 5	County Treasurer.	—	—	3 8 5	15 0 0
	Falkirk, Parliamentary Burgh.	—	—	—	3 14 0	Burgh Treasurer.	6 2 1	Inspector	9 16 1	9 2 1
	Stirling, Royal Burgh	—	—	—	1 5 10	Inspector	—	—	1 15 10	1 15 10
	Total for County of Stirling	—	—	—	8 18 3	—	6 2 1	—	15 0 4	25 17 11
Sutherland.	County	—	—	—	—	—	—	—	—	—
	Total for County of Sutherland	—	—	—	—	—	—	—	—	—
Wigtown	County and Royal Burgh.	—	—	—	—	—	—	—	—	—
	Stranraer, Royal Burgh.	—	—	—	1 5 6	Inspector	1 5 6	Inspector	2 11 0	2 11 0
	Total for County of Wigtown	—	—	—	1 5 6	—	1 5 6	—	2 11 0	2 11 0
Zetland	Lordship	No return made.								
	Total for County of Zetland	—	—	—	—	—	—	—	—	—

Appendix III.—*continued.*

SUMMARY OF ABSTRACT E.

ENGLAND.

County.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized. Amount.	Total Fees for Stamping. Amount.	Total Fees for Adjusting. Amount.	Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Beds	8 7 6	0 1 6	34 15 5	—	43 4 5	68 10 4
Berks	3 17 0	0 3 0	28 7 6	—	32 7 6	81 9 3
Bucks	5 2 0	—	33 11 1	2 2 1	40 15 2	46 12 4
Cambridge	2 1 6	0 16 0	26 10 11	—	29 8 5	22 10 9
Cheshire	23 15 4	0 15 11	201 4 3	119 7 0	345 2 6	463 10 10
Cornwall	16 19 0	1 12 9	120 13 4	8 6 10	147 11 11	131 18 9
Cumberland	7 15 0	2 6 10	53 5 4	32 3 6	95 10 8	120 2 10
Derby	26 15 6	—	9 17 8	49 19 3	86 12 5	166 13 2
Devon	32 13 6	1 7 5	80 10 4	41 16 11	156 8 2	199 2 3
Dorset	8 3 0	0 4 10	40 19 6	1 12 1	50 19 5	64 9 9
Durham	16 0 9	0 9 6	112 17 1	268 14 1	398 1 5	543 6 6
Essex	4 11 9	0 1 4	181 0 10	—	185 13 11	192 8 9
Gloucester	6 1 6	—	65 9 4	—	71 10 10	54 9 7
Hants	7 5 9	0 15 2	3 6 5	—	11 7 4	—
Hereford	—	—	28 7 4	—	28 7 4	92 2 0
Herts	5 8 6	0 1 0	5 17 7	3 10 6	14 17 7	8 11 9
Hunts	—	—	23 13 10	—	23 13 10	—
Kent	119 4 0	5 15 1	123 12 0	16 1 0	264 12 1	694 6 5
Lancaster	544 7 6	23 15 7	978 12 8	1,138 9 4	2,685 5 6	3,477 2 1
Leicester	27 12 3	—	23 2 7	—	50 14 10	95 10 0
Lincoln	13 9 4	0 9 4	149 11 3	21 10 7	185 0 7	257 19 10
Middlesex	534 7 6	65 11 9	640 7 3	9 9 1	1,249 15 7	1,635 15 1
Monmouth	1 0 0	0 4 0	26 6 3	21 16 6	49 6 9	123 5 1
Norfolk	45 3 2	0 2 6	75 15 11	2 15 5	123 17 4	213 10 1
Northampton	65 18 1	3 16 0	89 4 11	7 12 4	166 1 4	78 4 2
Northumberland	11 7 6	0 2 9	110 2 0	28 0 0	149 12 4	251 11 4
Nottingham	2 4 3	36 10 6	102 5 6	32 4 11	173 5 2	178 1 0
Oxon	7 1 0	0 10 0	95 14 3	—	103 5 3	54 16 1
Rutland	2 5 0	0 0 9	3 13 6	7 7 11	13 7 2	16 0 4
Salop	154 7 11	—	70 9 0	81 10 10	306 7 9	251 1 9
Somerset	29 10 0	0 4 4	268 10 10	455 11 2	753 16 4	923 14 0
Stafford	86 17 0	21 15 4	170 3 2	191 19 8	498 9 7	676 4 4
Suffolk	12 17 6	0 8 6	129 3 7	0 14 0	143 3 7	183 12 6
Surrey	749 3 6	30 11 0	196 5 5	—	975 19 11	1,667 17 0
Sussex	11 11 4	—	97 1 3	3 12 6	112 5 1	500 15 5
Warwick	21 15 6	5 0 0	232 19 0	150 1 3	409 15 9	814 4 2
Westmoreland	—	—	14 4 9	4 15 0	18 19 9	32 18 0
Wilts	5 16 6	0 0 8	10 6 7	—	16 3 9	131 13 11
Worcester	22 6 11	1 1 0	78 15 9	13 1 7	115 5 3	50 7 6
York	130 7 10	2 8 1	496 15 1	362 4 3	991 15 3	1,222 15 2
Total for England	2,773 11 2	207 2 5	5,233 10 3	3,076 9 7	11,290 13 4	15,762 4 2

WALES.

Anglesea	—	—	—	40 2 7	40 2 7	19 3 4
Brecon	6 18 9	—	1 1 9	—	8 0 6	39 5 4
Carmarthen	0 1 0	—	0 6 0	—	0 7 0	3 6 0
Cardigan	—	—	3 19 4	—	3 19 4	3 16 6
Carnarvon	—	—	31 9 9	—	31 9 9	15 18 9
Denbigh	7 11 8	—	21 5 6	26 14 5	55 11 7	26 14 5
Flint	5 5 9	—	19 5 6	—	24 11 3	29 16 0
Glamorgan	—	—	40 12 3	52 7 1	93 0 4	133 15 7
Merioneth	—	—	7 7 1	6 15 2	14 2 3	22 14 5
Montgomery	14 3 0	—	9 9 5	22 16 6	46 8 11	63 9 5
Pembroke	—	—	2 4 5	—	2 4 5	11 5 0
Radnor	—	—	—	—	—	—
Total for Wales	34 0 2	—	137 1 0	148 15 9	319 16 11	369 4 9

Appendix III.—*continued.*—Summary of Abstract E.—*continued.*

County.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized. Amount.	Total Fees for Stamping. Amount.	Total Fees for Adjusting. Amount.	Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
			SCOTLAND.			
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Aberdeen	2 5 0	—	60 19 2	50 12 8	113 16 11	158 8 7
Argyll	0 10 0	0 10 0	0 18 7	—	1 18 7	5 19 4
Ayr	11 12 6	—	48 5 6	0 9 4	60 7 4	61 14 4
Berwick	—	—	2 1 2	—	2 1 2	41 10 0
Banff	—	—	1 11 5	0 10 3	2 1 9	2 1 9
Bute	—	—	—	3 1 9	3 1 9	30 5 3
Caithness	0 7 6	—	5 1 11	3 16 9	9 6 2	17 7 3
Clackmannan	—	—	—	—	—	—
Cromarty	—	—	1 3 4	0 12 8	1 16 0	15 12 8
Dumbarton	—	—	30 5 8	33 0 0	63 5 8	80 5 8
Dumfries	—	—	22 14 4	15 19 5	38 13 9	33 15 9
Edinburgh	13 17 0	—	115 8 5	175 1 2	304 6 7	542 14 10
Elgin	—	—	3 3 3	1 7 7	4 10 10	9 10 10
Fife	13 11 6	—	18 9 1	—	32 0 7	61 10 8
Forfar		—	53 9 10	—	53 9 10	82 3 0
Haddington	—	—	1 14 0	0 8 9	2 2 9	2 2 9
Inverness	—	—	7 0 0	—	7 0 0	27 0 0
Kirkcudbright	—	—	19 3 11	8 9 6	27 13 5	15 4 9
Kincardine	—	—	2 4 10	3 6 7	5 11 5	18 16 8
Kinross	—	—	—	—	—	—
Lanark	64 18 0	1 6 6	393 8 3	220 14 0	680 6 9	464 9 7
Linlithgow	—	—	—	—	—	—
Nairn	—	—	—	—	—	—
Orkney	—	—	5 9 10	16 4 3	21 14 1	31 14 2
Peebles	—	—	0 18 6	0 0 7	0 19 1	0 1 11
Perth	—	—	73 4 9	75 19 9	149 4 6	160 15 9
Renfrew	3 11 6	—	43 8 11	14 15 9	61 16 3	71 5 5
Ross	—	—	17 8 7	3 11 7	21 0 3	9 5 5
Roxburgh	17 8 6	—	11 10 6	21 0 4	49 19 4	82 5 11
Selkirk	—	—	1 15 8	2 0 0	3 15 8	8 13 9
Stirling	—	—	8 18 3	6 2 1	15 0 4	25 17 11
Sutherland	—	—	—	—	—	—
Wigtown	—	—	1 5 6	1 5 6	2 11 0	2 11 0
Zetland	—	—	—	—	—	—
Total for Scotland	128 1 6	1 16 6	951 3 2	658 10 3	1,739 11 5	2,063 5 2
England	2,773 11 2	207 2 5	5,233 10 3	3,076 9 7	11,290 13 4	15,762 4 2
Wales	34 0 2	—	137 1 0	148 15 9	319 16 11	369 4 9
Scotland	128 1 6	1 16 6	951 3 2	658 10 3	1,739 11 5	2,063 5 2
Total for Great Britain	2,835 12 10	208 18 11	6,321 14 5	3,883 15 7	13,350 1 8	18,194 14 1

County.	Proportional Amount of Penalties applicable in Payment of total Expenditure.	Total Produce of Weights, &c. seized. Amount.	To whom paid.	Total Fees for Stamping. Amount.	To whom paid.	Total Fees for Adjusting. Amount.	To whom paid.	Total Receipt applicable to total Expenditure.	Total Expenditure for Salaries and Emoluments of Inspectors and Expenses.
Jersey, Island of	—	—	—	9 15 6	Inspector	Included in Fees received for stamping.		—	9 15 6 No salary.
Man, Island of:									
Douglas District	5 0 0	—	Officer assisting.	6 10 0	5*l.* to Officer assisting, 1*l.* 10*s.* to High Sheriff.	—	—	—	6 10 0
Ramsey District	—	—	—	9 1 2	Inspector	—	—	—	9 1 2
Castletown District					No return.				
Peel District					No return.				

Standards Department, Board of Trade,
November 18, 1868.

H. W. Chisholm,
Warden of the Standards.

Appendix III.—*continued.*

ABSTRACT of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in GREAT BRITAIN, for the Year ended December 31, 1866—*continued.*

ABSTRACT F.—NUMBER, SALARIES, &c. OF LOCAL INSPECTORS OF WEIGHTS AND MEASURES.

Note.—With respect to those places from which no return has been received, the number of Inspectors as well as the amount of salary, so far as could be ascertained, is printed in *Italics*, such number having been obtained from information derived from other official sources, and Parliamentary Returns.

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
BEDFORDSHIRE	4 Subdivisions of the County	104,053	4	Police Officers	40 0 0	—
	Bedford, Borough	13,413	1	Police Officer	20 0 0	—
	Luton, Manor	17,821	—	No Standards in use	—	—
	Woburn. Manor	—	—	Transferred to County	—	—
	Total for the County of Bedford	—	5		60 0 0	—
BERKSHIRE	7 Subdivisions of the County	120,608	7	Police Officers	70 0 0	—
	Abingdon, Borough	5,680	1	Serjeant-at-Mace	—	2 11 3
	Maidenhead, Borough	3,895	1	Superintendent of Police	—	—
	Newbury, Borough	6,161	*1*	No return made	*10 0 0*	—
	Reading, Borough	25,045	*1*	Toll collector. No return made	*30 0 0*	—
	Wallingford, Borough	—	—	Inspection transferred to County	—	—
	Windsor, Borough	9,520	1	Town Surveyor	10 0 0	—
	Wokingham, Borough	2,404	1	Superintendent of Police	—	—
	Farringdon, Manor	2,943	—	No return made	—	—
	Total for the County of Berks	—	13		120 0 0	2 11 3
BUCKS	6 Subdivisions of the County	159,923	6	Superintendents of Police	—	—
	Buckingham, Borough	3,849	1	Police Constable	2 2 0	—
	Wycombe, Borough	4,221	1	Superintendent of Police	3 3 0	—
	Winslow, Manor	—	—	Inspection transferred to County	—	—
	Total for the County of Bucks	—	8		5 5 0	—
CAMBRIDGE WITH ISLE OF ELY.	4 Subdivisions of the County, viz.:—					
	Anington	140,379	4	Superintendents of Police	—	—
	Cambridge					
	Lewton					
	Newmarket					
	Cambridge, Borough	26,361	*1*	No return made	*50 0 0*	—
	Wisbeach, Borough	9,276	1	Cooper	16 13 4	—
	Total for the County of Cambridge	—	6		66 13 4	—
CHESHIRE	9 Subdivisions of the County, viz.:—					
	Bricklow	334,980	1	Superintendent of Police	—	30 0 0*
	Broxton		1	" "	—	15 0 0
	Eddisbury		1	" "	—	20 0 0
	Hyde		1	" "	—	30 0 0*
	Macclesfield		1	" "	—	20 0 0
	Nantwich		1	" "	—	25 0 0
	Northwich		1	" "	—	30 0 0
	Stockport		1	" "	—	20 0 0
	Wirral		1	" "	—	30 0 0
	Birkenhead, Town	36,212	1	Superintendent of the Market	—	—
	Chester, City and Borough	31,110	1	" "	25 0 0	4 12 6
	Congleton, Borough	12,344	1	Head Constable	—	5 6 10
	Macclesfield, Borough	36,101	*1*	No return made	*70 0 0*	—
	Stockport, Borough	54,681	1	No other occupation	75 0 0	—
	Total for the County of Chester	—	14		170 0 0	229 19 4
CORNWALL	6 Subdivisions of the County	316,568	6	Superintendents of Police	—	60 0 0*
	Bodmin, Borough	4,466	1	Police Officer	—	3 2 0
	Falmouth, Borough	5,709	1	Watchmaker	—	4 5 6
	Helston, Borough	3,843	1	Iron Founder	7 0 0	1 2 7
	Launceston, Borough	2,790	—	No return made	—	—
	Liskeard, Borough	4,689	2	Police Officers	—	2 16 5
	Penryn, Borough	3,547	1	Carpenter and Joiner	—	3 10 0

* Allowed for expenses.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
Cornwall—*cont.*	Penzance, Borough	9,414	1	Police Officer	5 0 0	0 15 3
	St. Germans, Borough	—	—	Transferred to County	—	—
	St. Ives, Borough	7,027	1	Police Officer	5 0 0	—
	Truro, Borough	11,337	2	Town Serjeants (5*l.* each)	10 0 0	—
	Total for the County of Cornwall	—	16		27 0 0	75 11 9
Cumberland	6 Subdivisions of the County	269,392	6	Superintendents of Constabulary	—	—
	Carlisle, City	29,417	2	Whitesmiths	39 11 8	29 3 4
	Workington, Town	6,467	1	Gasfitter	—	—
	Total for the County of Cumberland	—	9		39 11 8	29 3 4
Derby	12 Subdivisions of the County, viz.:—					
	Alfreton	267,274	1	Superintendent of Police	5 0 0	—
	Ashbourn		1	" "	—	7 10 0
	Bakewell		1	" "	—	5 0 0
	Belper		1	" "	—	9 4 0
	Chapel-en-le-Frith		1	" "	—	—
	Chesterfield, including the Borough.		1	" "	—	12 0 0
	Derby		1	" "	—	7 15 0
	Eckington		1	" "	—	9 0 0
	Glossop, including the Boro'		1	" "	12 0 0	—
	Repton and Grisley		1	" "	—	21 11 6
	Smalley		1	" "	8 0 0	16 0 0
	Wirksworth		1	" "	—	7 5 0
	Chesterfield, Borough	9,836	—	Transferred to County	—	—
	Derby, Borough	43,091	—	No return made	—	—
	Glossop, Borough	19,126	—	Transferred to County	—	—
	Total for the County of Derby	—	12		25 0 0	95 5 6
Devon	12 Subdivisions of the County, viz.:—					
	Barnstaple	352,557	1	Police Officer	12*s.* per day when employed away from home, 1*s.* 6*d.* a day at home.	
	Bideford and Torrington		1	Superintendent of Police	"	"
	Castle District		1	Watch and Clockmaker	—	2 2 8
	Collumpton		1	Superintendent of County Police	—	—
	Honiton		1	Superintendent of Police	12*s.* per day when employed away from home, 1*s.* 6*d.* a day at home.	
	Okehampton		1		—	15 15 6
	Paignton		1	Superintendent of Police	12*s.* per day when employed away from home, 1*s.* 6*d.* a day at home.	
	Stanborough and Coleridge		1	Bailiff	—	4 2 10
	East Stonehouse, &c.		1	Superintendent of Police	12*s.* per day when employed away from home, 1*s.* 6*d.* a day at home,	
	Tavistock		1	" "	"	"
	Teignbridge		1	Shopkeeper	—	—
	Tiverton		1	Superintendent of County Police	12*s.* per day when employed away from home, 1*s.* 6*d.* a day at home.	
	Barnstaple, Borough	10,743	*1*	No return made	*10 0 0*	—
	Bideford, Town	5,742	*1*	No return made	*10 0 0*	—
	Bradninch, Borough	1,796	1	Superintendent of County Constabulary.	2 0 0	—
	Dartmouth, Borough	4,444	*1*	No return made	—	—
	Devonport, Borough	50,440	1	Chief Constable	20 0 0	—
	Exeter, City and County of a City.	33,738	*1*	No return made	*30 0 0*	—
	Exmouth, Town	5,228	—	No return made	—	—
	Great Torrington, Town	3,298	—	No Standards in use	—	—
	Holsworthy, Town and Manor	1,724	2		22 0 0	—
	Ilfracombe, Borough	—	—	Transferred to County	—	—
	Molton, South, Borough	3,830	1	Superintendent of Police	2 2 0	—
	Okehampton, Borough	—	—	Transferred to County	—	—
	Plymouth, Borough	62,599	3	Corporation Officers	—	23 3 6
	Stoke Damerel, Parish	—	—	No return made. See Devonport, Borough.		—
	Stonehouse, East, Parish	14,343	—	No return made	—	—
	Tiverton, Borough	10,447	1	Superintendent of Police	1 0 0	—
	Totnes, Borough	4,001	1		—	—
	St. Sidwell, Manor	10,478	—	Inspection discontinued in 1862	—	—
	Tavistock, Manor	8,965	—	Constable of County Constabulary.	—	—
	Total for the County of Devon	—	26		97 2 0	45 4 6

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
Dorset	9 Subdivisions of the County	154,549	9	Superintendents of Police	—	18 14 4
	Bridport, Borough	—	—	Transferred to County	—	—
	Dorchester, Borough	6,823	1	Corporation Surveyor	10 0 0	—
	Lyme Regis, Borough	2,318	1	Serjeant of Police	—	—
	Poole, Town and County	9,759	1	Police Officer	—	—
	Weymouth, Borough	11,383	—	No return made	—	—
	Gillingham, Liberty and Manor	3,957	—	No return made	—	—
	Total for the County of Dorset	—	12		10 0 0	18 14 4
Durham	11 Subdivisions of the County, viz.:—					
	Barnard Castle		1	Superintendent of Police	—	2 10 0
	Bishop Auckland		1	" "	—	12 6 0
	Castle Eden		1	" "	—	3 10 0
	Chester		1	" "	—	10 0 0
	Darlington		1	" "	—	5 0 0
	Durham	348,272	1	" "	—	5 0 0
	Houghton-le-Spring		1	" "	—	12 0 0
	Jarrow		1	" "	—	7 0 0
	Lanchester		1	" "	—	5 10 0
	Stanhope		1	" "	—	5 0 0
	West Hartlepool		1	" "	—	7 0 0
	Gateshead, Borough	33,587	1	" "	2 5 0	—
	Stockton-on-Tees, Borough	13,357	1	" "	5 0 0	—
	South Shields, Borough	35,239	1		52 0 0	—
	Sunderland, Borough	78,211	1		200 0 0	—
	Total for the County of Durham	—	15		259 5 0	74 16 0
Essex	15 Subdivisions of the County	363,557	15	Superintendents of Police	—	131 0 0
	Colchester, Borough	23,809	1	Ironmonger	50 0 0	—
	Maldon, Borough	4,785	*1*	No return made	*5 0 0*	—
	Harwich, Borough	5,070	1	Inspector of Police	—	—
	Havering-atte-Bower, Liberty of	429	1	" "	7 0 0	—
	Saffron Walden, Borough	5,474	1	" "	—	—
	Wetherfield, Manor	1,727	—	No Standards in use	—	—
	Total for the County of Essex	—	20		62 0 0	131 0 0
Gloucestershire.	8 Subdivisions of the County	454,312	8	Superintendents of Police	—	—
	Bristol, *see* Somersetshire.					
	Cirencester, Town and Borough	6,336	—	No return made	—	—
	Gloucester, City, County of a City, and Borough.	16,512	1	Deputy Chief Constable	10 0 0	—
	Tewkesbury, Borough	5,876	1	Brazier	5 0 0	—
	Wootton-under-Edge, Town	2,734	—	No return made	—	—
	Bisley, Manor	—	—	Transferred to County	—	—
	Churchdown, Manor	—				
	Cirencester, 7 Hundreds of	—				
	Hempstede, Manor	—				
	Presbury, Manor	—				
	Stow-in-the-Wold, Manor	—				
	Netherswell, Manor	—				
	Total for the County of Gloucester	—	10		15 0 0	—
Hants	14 Subdivisions of the County	305,201	14	Superintendents of Police	—	—
	Andover, Borough	5,221	—	Not stated	—	—
	Basingstoke, Town	4,654	1	Superintendent of Police	—	—
	Newport, Isle of Wight, Boro'	—	—	Transferred to County	—	—
	Portsmouth, Borough	94,799	*1*	Not stated	*120 0 0*	—
	Ryde, Isle of Wight, Town	9,269	—	No return made	—	—
	Southampton, Borough	46,960	—	No return made	—	—
	Winchester, City	14,776	*1*	No return made	*25 0 0*	—
	Stockbridge, Boro' and Manor	935	—	No return made	—	—
	Total for the County of Hants	—	17		145 0 0	—
Herefordshire	9 Subdivisions of the County	102,469	9	Police Officers	—	—
	Hereford, City and Borough	15,585	1		65 0 0	—
	Leominster, Borough	5,658	1	Land Agent	7 10 0	—
	Total for the County of Hereford	—	11		72 10 0	—
Hertfordshire	11 Subdivisions of the County	138,267	—	Police Inspectors	—	—
	Bishop Stortford, Town	4,673	—	No return made } but included	—	—
	Hemel Hempsted, Town	2,974	—	No return made } in County	—	—
	Hertford, Borough	6,769	1	Head Constable	—	2 10 6
	Hitchin, Town	6,330	—	No return made, but included in County		—
	St. Albans, Borough	7,675	1	Superintendent of Police	—	2 10 9
	Cheshunt, Manor	6,592	1	Beadle of the Manor	—	—
	Total for the County of Herts	—	3		—	5 1 3

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
Huntingdonshire.	4 Subdivisions of the County	64,250	5	Superintendents of Police	—	—
	Huntingdon, Borough	—	—	Transferred to County	—	—
	Total for the County of Hunts	—	5		—	—
Kent	17 Subdivisions of the County, viz.:—					
	Ashford	482,903	1	Surveyor	30 0 0	30 0 0
	Aylesford, North (Rochester)		1	Usher of County	32 0 0	43 6 0
	Aylesford, Upper, South		1	No other occupation	9 0 0	—
	Aylesford, Lower, South		1	Parish Constable	14 0 0	—
	Bearsted		1	Builder	26 0 0	107 7 9
	Blackheath		2	Constables	80 0 0	20 0 0
	Bromley		1	Boot Maker	12 0 0	45 0 9
	Cranbrook Scray		1	Woollen Draper	10 10 0	29 17 9
	Dartford		1	High Constable	14 0 0	17 7 6
	Faversham		1	Sheriff's Officer	22 10 0	43 18 6
	Home Division of St. Augustine.		1	Relieving Officer	22 10 0	27 2 9
	Isle of Sheppey		1	Parish Constable	10 0 0	10 0 0
	Ramsgate (East Kent, Division of).		1	No other occupation	3 10 0	0 6 6
	Sevenoaks		1	Road Surveyor	10 10 0	29 15 6
	Shepway (Upper Division)		1	Whitesmith	10 10 0	—
	Tonbridge Wells		1	Wine Merchant	15 0 0	0 4 3
	Wingham		1	—	10 10 0	3 12 0
	Bexley, Parish	—	—	Transferred to County	—	—
	Canterbury, City	21,324	1	Tinman and Shopkeeper	15 0 0	—
	Chatham, Town	25,183	—	No return made	—	—
	Dartford, Parish	5,314	—	No return made	—	—
	Deal, Town	7,531	1	Superintendent of Police	—	—
	Dover, Borough	25,325	*1*	No return made	—	—
	Faversham, Borough	5,858	1	—	20 0 0	—
	Folkestone, Borough	8,507	1	Printer	20 0 0	—
	Gravesend and Milton, Borough	18,782	1	Head Constable	—	—
	Hythe, Borough	3,001	1	Surveyor	3 0 0	—
	Lydd, Borough	1,667	1	Hairdresser	2 2 0	—
	Maidstone, Borough	23,016	2	Superintendents of Police	4 0 0	—
	Queenboro', Borough	973	1	Serjeant-at-Mace	5 0 0	—
	Ramsgate, Town	11,865	1	Constable	10 0 0	—
	Rochester, City	16,862	1	Serjeant-at-Mace	25 0 0	13 0 0
	Romney, New, Borough	1,062	1	Watchmaker	6 6 0	—
	Sandwich, Borough	2,944	1	Head Constable	10 0 0	—
	Sheppey, Parish of Minster in	—	—	Transferred to County	—	—
	Tenterden, Borough	3,762	1	Superintendent of Police	4 0 0	—
	Woolwich, Parish of St. Mary	41,695	—	No return made	—	—
	Brasted, Manor	1,182	1	——	—	—
	Lewisham, Manor	22,808	—	——	—	—
	Swanscombe, Manor	2,323	—	——	—	—
	Total for the County of Kent	—	35		456 18 0	420 19 3
Lancashire	17 Subdivisions of the County	681,899	16	Superintendents of Police	480 0 0	—
			1	—	90 0 0*	—
			1	High Bailiff of County Constabulary.	90 0 0	—
	Ashton-under-Lyne, Borough	34,886	1	Chief Constable	15 0 0	—
	Accrington, Town	13,872	—	No return made. Included in County.		—
	Blackburn, Borough	63,126	1	Chief Constable	37 0 0	—
	Bolton, Borough	70,395	1	Neither	85 0 0	—
	Clitheroe, Borough	7,000	1	Assistant Overseer	—	5 5 6
	Lancaster, Borough	14,487	—	No return made. Included in County.		—
	Liverpool, Borough	443,938	3	None	170 0 0	—
					120 0 0	—
					110 0 0	—
	Manchester, Borough	338,722	3	—	220 0 0	—
					140 0 0	—
					100 0 0	—
	Oldham, Borough	72,333	2	Superintendents of Police	—	—
	Preston, Borough	82,985	1	Market Inspector	—	—
	Salford, Borough	102,449	1	—	125 0 0	—
	Staleybridge,† Borough	24,921	1	Police Officer	10 0 0	—
	Warrington, Borough	26,431	*1*	No return made	*10 0 0*	—
	Wigan, Borough	37,658	1	Clockmaker	—	30 10 1
	Bury, Market	30,397	1	Market Inspector	Included in salary as Market Inspector.	
	Manchester, Manor	—	—	Transferred to Borough of Manchester.		—
	Rochdale, Manor	119,531	—	No return made	—	—
	Total for the County of Lancaster	—	36		1,802 0 0	35 15 7

* Adjusting Fees.

† The Borough of Staleybridge is mostly in Cheshire.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
Leicestershire.	1 District	179,356	2	Police Officers	—	—
	2 „		1	„	—	—
	3 „		1	Superintendent of Police	—	—
	4 „		1	„ „	—	—
	5 „		1	„ „	—	—
	6 „		1	„ „	—	—
	7 „		1	„ „	—	—
	Leicester, Borough	68,056	1	Ironmonger	70 0 0	—
	Total for the County of Leicester	—	9		70 0 0	—
Lincolnshire	The County divided into three Ridings or Parts, viz.:—					
	I. Parts of Lindsey	332,217	8	Superintendents of Police	70 0 0	—
	II. Parts of Holland		2	„ „	42 0 0	—
	III. Parts of Kesteven		4	„ „	48 0 0	—
	Boston, Borough	14,712	1	Brazier	20 0 0	0 5 0
	Grantham, Borough	4,954	1	Superintendent of Police	—	3 5 4
	Great Grimsby, Borough	11,067	—		—	—
	Lincoln, City and County of City.	20,999	1	Chief Constable	30 0 0	—
	Louth, Borough	10,560	1	Superintendent of Police	—	—
	Spalding, Borough	7,032	1	„ „	24 0 0	—
	Stamford, Borough	8,047	1	Head Constable	—	—
	Alford, Manor	2,658	—	Transferred to County	—	—
	Total for the County of Lincoln	—	20		234 0 0	3 10 4
Middlesex	4 Subdivisions of the County, viz.:—					
	No. 1. Tower Hamlets	1,245,618	1		150 0 0	382 0 0
	No. 2. Clerkenwell		1		150 0 0	78 6 3
	No. 3. Bloomsbury		1		150 0 0	64 16 10
	No. 4. Brentford		1		150 0 0	40 0 0
	Chelsea, Parish of St. Luke	—	—	Transferred to the County	—	—
	Islington, Parish of St. Mary	155,341	—	No return made. Inspection by Jury.		—
	Kensington, Parish of St. Mary Abbott's.	—	—	Transferred to County	—	—
	London, City	112,063	2	No other occupation	300 0 0	—
	Metropolitan Board of Works	—	—		—	—
	Founders' Company	—	—		—	—
	Paddington, Parish	75,784	There are 16 Inspectors appointed by the Vestry yearly, under their Local Act, without any salary or emoluments paid to them.			
	St. Marylebone, Parish	161,680	20 Inspectors are annually appointed by the Vestry.			
	St. Pancras, Parish	198,788	Leet Jury appointed by the Vestry under the Act 59 Geo. 3. cap. 39., without fees or emoluments (yearly).			
	Tower of London, Liberty	2,588*	1	High Constable	—	14 2 5
	Westminster, City and Liberty	254,623	1		70 0 0	18 3 3
			1		50 0 0	
	St. John of Jerusalem	—	—	Transferred to County	—	—
	Savoy, Parish	—	—	Transferred to County	—	—
	The Rolls, Liberty of	—	—	Transferred to County	—	—
	Heston, Parish (Manor of Isleworth).	—	—	Transferred to County	—	—
	Isleworth, Parish (Manor of Isleworth).	—	—	Transferred to County	—	—
	Twickenham, Parish (Manor of Isleworth).	—	—	Transferred to County	—	—
	Total for the County of Middlesex	—	9		1,020 0 0	597 8 9
Monmouthshire.	County of Monmouth	145,601	1	Crier of the Court of Quarter Sessions.	75 0 0	16 4 7
	Monmouth, Borough	5,783	*1*	No return made	*5 0 0*	—
	Newport, Borough	23,249	1	Chief Superintendent of Police	10 0 0	40 12 6
	Total for the County of Monmouth	—	3		90 0 0	56 17 1
Norfolk	15 Subdivisions of the County	304,063	16	Police Officers	—	5 2 0
	Buckenham, New, Borough	656	1	Leather Cutter	—	—
	King's Lynn, Borough	16,170	*1*	No return made	*30 0 0*	—
	Norwich, City and County of City.	74,891	2	Police Officers	109 4 0	—
	Thetford, Borough	4,208	1	Superintendent of Police	6 0 0	—
	Walsham, North, Parish	—	—	Transferred to County	—	—
	Yarmouth, Borough	34,810	1	Brewer's Agent	15 0 0	8 19 6
	Total for the County of Norfolk	—	22		160 4 0	14 1 6

* Including Old Artillery Ground, Precinct of Wellclose, Holy Trinity, Minories.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
Northampton -	County of Northampton - -	177,880	7	Police Officers - -	—	—
	Daventry, Borough - -	4,124	*1*	No return made - -	*5 0 0*	—
	Higham Ferrers, Borough -	1,152	*1*	No return made - -	*5 0 0*	—
	Northampton, Borough - -	32,813	1	Police Officer - - -	—	—
	Peterborough, Soke and City of -	11,735	1	„ „ - - -	—	—
	Total for the County of Northampton -	—	11	- - - - -	10 0 0	—
Northumberland.	6 Subdivisions of the County, viz. :—					
	Castle Ward, East - -	161,337	1	Keeper of House of Correction	15 0 0	—
	„ „ West - -		1	Keeper of the Prison - -	15 0 0	—
	Coquetdale Ward, &c. -		1	Keeper of House of Correction	15 0 0	—
	Morpeth Ward, &c. -		1	Superintendent of Police -	—	—
	Norham Ward, &c. - -		1	Private Hotel Keeper - -	10 0 0	—
	Tinedale Ward, &c. -		1	Keeper of House of Correction	15 0 0	3 0 0
	Berwick-upon-Tweed, County of, Borough, and Town.	13,265	1	Serjeant-at-Mace - -	15 0 0	3 0 0
	Newcastle-upon-Tyne, Town and County.	109,108	1	Plumber - - -	80 0 0	—
	Tynemouth, Borough - -	34,021	1	Joiner and Cabinet maker -	15 0 0	25 0 0
	Alnwick, Manor and Borough -	7,350	—	Not stated - - -	—	—
	Corbridge, Prudhoe, and Newburn, Manor and Barony.	6,789	—	Not stated - - -	—	—
	Hexham, Manor - -	5,270	—	No return made - -	—	—
	Rothbury, Manor - -	798	—	Not stated - - -	—	—
	Warkworth, &c., Manor and Borough.	5,087	—	Not stated - - -	—	—
	Total for the County of Northumberland -	—	9	- - - - -	180 0 0	31 0 0
Nottingham -	6 Subdivisions of the County -	207,659	6	Superintendents of Police -	—	5*s.* per day when out inspecing.
	Newark, Borough - -	11,515	1	Chief Constable - -	12 0 0	—
	Nottingham, Town and County of Town.	74,693	2	High Constable - -	70 0 0	—
				Clerk of the Market - -	75 0 0	—
	Retford, East, Borough - -	—	—	Transferred to County -	—	—
	Total for the County of Nottingham - -	—	9	- - - - -	157 0 0	—
Oxfordshire -	County of Oxford - -	136,188	10	Police Officers - -	—	—
	Banbury, Borough - -	4,059	2	Serjeants-at-Mace - -	—	—
	Chipping Norton, Borough -	3,137	—	No return made - -	—	—
	Oxford University* - -	27,560	1	Inspector of Corn Returns -	40 0 0	—
	Total for the County of Oxford - -	—	13	- - - - -	40 0 0	—
Rutland -	- - - - - -	21,861	1	Chief Constable of the County	—	—
	Total for the County of Rutland - -	—	1	- - - - -	—	—
Salop - -	2 Subdivisions of the County :—					
	1. North - - -	182,265	1	- - - - -	85 0 0	—
	2. South - - -		1	- - - - -	64 1 8	—
	Bridgnorth, Borough - -	6,240	1	Head Constable - -	5 0 0	—
	Ludlow, Town - - -	5,178	1	Superintendent of Police -	—	3 14 10
	Oswestry, Borough - -	5,414	1	Whitesmith - - -	3 0 0	—
	Shrewsbury, Borough - -	22,163	1	Chief Constable - -	5 0 0	—
	Wenlock, Borough - -	19,699	1	Inspector for North District of County.	20 18 4	—
	Total for the County of Salop - -	—	7	- - - - -	183 0 0	3 14 10
Somersetshire	15 Subdivisions of the County -	198,096	15	Superintendents of Police -	225 5 0	2 12 7
	Axbridge, Borough - -	799	1	Superintendent of Police -	2 2 0	—
	Bath, City and Borough -	52,528	1	Journalist - - -	150 0 0	—
	Bridgewater, Borough - -	11,320	1	Plumber, Painter, &c. - -	10 0 0	15 10 0
	Bristol, City and County of City.	154,093	1	- - - - -	200 0 0	5 16 5
	Glastonbury, Borough - -	—	—	Transferred to County -	—	—
	Wells, Borough - -	—	—	Transferred to County -	—	—
	Yeovil, Borough - -	7,957	1	Superintendent of Police -	4 0 0	—
	Watchett, Manor and Borough, and Williton Manors.	17,345	4	Tradesmen - - -	—	—
	Wiveliscombe, Borough, and adjacent Manors.	2,735	2	„ - - -	—	—
	Total for the County of Somerset - -	—	26	- - - - -	591 7 0	23 19 0

* Population of the University Colleges of Oxford is 584, and of the City of Oxford, 27,560. The University jurisdiction in regard to weights and measures extends over the city. Since the date of this return however the jurisdiction has been transferred from the *University* to the *City* authorities, under the provisions of the Oxford Police Act, 1868.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary. £ s. d.	Amount of other Emoluments. £ s. d.
Staffordshire	3 Subdivisions of the County, viz.:—					
	1. North	537,496	1	A Captain of Militia	120 0 0	40 0 0*
	2. South		1	None	120 0 0†	—
	3. Central		1	None	120 0 0‡	—
	Bilston, Market	24,364	—	No return made	—	—
	Burslem, Town	17,821	—	No return made	—	—
	Hanley, Market	31,953	1	House Agent	50 0 0	—
	Lichfield, City	6,893	—	No return made	—	—
	Newcastle-under-Lyne, Borough	12,938	1	Head Constable	—	—
	Stafford, Borough	12,532	1	None	6 0 0	0 14 4
	Tamworth, Borough	4,326	1	Ironmonger	2 0 0	—
	Walsall, Borough	37,760	1	Chief Superintendent of Police	10 0 0	—
	Wolverhampton, Borough	60,860	1	Chief Constable	—	—
	Total for the County of Stafford	—	9		428 0 0	40 14 4
Suffolk	3 Divisions of the County, viz.:—					
	East Suffolk, 5 Districts, viz.:—					
	Beccles		1	Superintendent of Police	8 8 0	—
	Yoxford		1	" "	7 4 0	—
	Suffolk		1	" "	7 16 0	—
	Woodbridge		1	" "	6 0 0	—
	Ipswich		1	" "	6 0 0	—
	West Suffolk:—					
	Head Quarters, Bury St. Edmund's.	271,791	1	" "	16*l.* allowed to defray expenses of assistance, travelling, &c.	
	4 Districts, viz.:—					
	Cosford		1	" "	"	"
	Mildenhall		1	" "	"	"
	Clare		1	" "	"	"
	Ixworth		1	" "	"	"
	Aldeburgh, Borough	1,721	1	Tax Collector	2 0 0	—
	Bury St. Edmund's, Borough	13,318	1	Superintendent of Police	20 0 0	—
	Eye, Borough	2,430	1	" "	1 0 0	—
	Halesworth, Town	—	—	Transferred to County	—	—
	Ipswich, Borough	37,950	1	Engineer	40 0 0	—
	Orford, Borough	948	—	No return made	—	—
	Southwold, Town	2,032	1	Police Officer	—	—
	Stowmarket, Town	—	—	Transferred to County	—	—
	Sudbury, Borough	6,879	1	Superintendent of Police	—	—
	Total for the County of Suffolk	—	16		98 8 0	—
Surrey	11 Subdivisions of the County, viz.:—					
	A. (West) District	813,283	1		250 0 0	282 5 9
	A. (East) "		1		250 0 0	401 18 3
	B. "		1		175 0 0	22 19 6
	C. "		1		225 0 0	30 13 6
	D. (Guildford) District		1	Deputy Chief Constable	—	—
	E. (Reigate) "		1	Superintendent of County Constabulary.	—	—
	No. 1. (Chertsey) "		1	Superintendent of Police	—	—
	No. 2. (Farnham) "		1	" "	—	—
	No. 3. (Dorking) "		1	" "	—	—
	No. 4. (Godstone) "		1	" "	10 0 0	—
	No. 5. (Godalming) District		1	Deputy Chief Constable	—	—
	Battersea, Parish	—	—	Transferred to County	—	—
	Camberwell, Parish of St. Giles	—	—	Transferred to County	—	—
	Clapham, Parish	—	—	Transferred to County	—	—
	Godalming, Borough	—	—	Transferred to County	—	—
	Guildford, Borough	8,020	1	Superintendent of Police	5 0 0	—
	Kingston, Borough	9,790	1	No return made	—	—
	Mitcham, Parish	—	—	Transferred to County	—	—
	Southwark, Town and Borough	—	—	Transferred to County	—	—
	Streatham, Parish	—	—	No return made	—	—
	Croydon, Manor	—	—	Transferred to County	—	—
	Southwark, Manor	See Town and Borough of.		Transferred to City of London	—	—
	Total for the County of Surrey	—	13		915 0 0	737 17 0
Sussex	11 Subdivisions of the County, viz.:—					
	Arundel and Worthing	247,806	1	Superintendent of Police	—	—
	Battle		1	Vestry Clerk, &c.	22 10 0	2 14 0
	Chichester		1	Superintendent of Police	—	—
	East Grinstead		1	Assessor of Taxes	20 0 0	5 11 0
	East Sussex, No. 2.		1		41 7 6	5 0 0
	Horsham		1	Superintendent of Police	—	—
	Lewes		1		45 0 0	20 19 9
	Mansfield		1	Tailor, &c.	28 0 0	15 7 6
	Midhurst		1	Superintendent of Police	—	—
	Petworth		1	" "	—	—
	Steyning		1	" "	—	—

* For a horse. † An Assistant at 5*s.* per day when Inspector is absent. ‡ 5*s.* a day for travelling expenses when away from home.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
Sussex—*cont.*	Arundel, Borough	2,498	1	-	—	—
	Battle, Town	—	—	Transferred to County	—	—
	Brighton, Borough	77,693	1	-	110 0 0	—
	Chichester, City	8,059	1	Chief Superintendent of Police	10 0 0	—
	East Grinstead, Town	—	—	Transferred to County	—	—
	Hastings, Borough	22,837	1	Serjeant-at-Mace	30 0 0	—
	Pevensey, Liberty of	385	1	-	1 1 0 and Fees.	—
	Rye, Borough	3,738	1	Serjeant-at-Mace	2 2 0	—
	Winchelsea, Borough	719	—	No return made	—	—
	Worthing, Town	—	—	Transferred to County	—	—
	Total for the County of Sussex	—	17	-	310 0 6	49 12 3
Warwick	5 Hundreds of the County, viz.:—					
	Barlickway, Hundred	187,981	1	Superintendent of Police	—	3 8 6
	Hemlingford, Part 1.		1	" "	—	6 17 0
	" " Part 2.		1	" "	—	2 7 6
	Kineton "		1	" "	—	4 0 11
	Knightlow "		1	" "	—	3 15 0
	Birmingham, Borough	296,076	3	-	130 0 0 100 0 0 100 0 0	—
	Coventry, City	40,936	1	Chief Superintendent of Police	—	5 2 9
	Leamington, Parish	17,958	1	-	20 0 0	—
	Stratford-on-Avon, Borough	3,672	1	Superintendent of Police	—	2 15 0
	Sutton Coldfield, Royal Town, Manor of.	4,662	1	Watch and Clock Maker	15*s.* per day when employed.	
	Warwick, Borough	10,570	1	Superintendent of Police	10 0 0	—
	Total for the County of Warwick	—	13	-	360 0 0	28 6 8
Westmoreland	County	60,817	2	Superintendents of Police	—	—
	Kirby-in-Kendal, Borough	—	—	Transferred to County	—	—
	Total for the County of Westmoreland	—	2	-	—	—
Wiltshire	9 Subdivisions of the County	221,005	9	Superintendent of Police	—	105 3 0
	Devizes, Borough	6,638	—	No return made	—	—
	Marlborough, Borough	3,684	1	Superintendent of Police	—	—
	Sarum, New, City and Borough	12,278	1	Serjeant-at-Mace	15 0 0	5 0 0
	Swindon, Market	4,167	—	No return made	—	—
	Aldborne, Manor	1,539	—	No return made	—	—
	Trowbridge, Manor	—	—	Transferred to County	—	—
	Total for the County of Wilts	—	11	-	15 0 0	110 3 0
Worcestershire.	9 Subdivisions of the County	254,580	10	Superintendents of Police	—	—
	Bewdley, Borough	2,905	1	Head Constable	Paid by Fees.	No account kept.
	Droitwich, Borough	3,124	1	Attorney's Clerk	10 0 0	—
	Dudley, Parish and Borough	—	—	Transferred to County	—	—
	Evesham, Borough	—	—	Transferred to County	—	—
	Kidderminster, Borough	15,399	1	Superintendent of Police	—	—
	Stourbridge, Town	—	—	Transferred to County	—	—
	Worcester, City	31,227	1	Mayor's Officer	20 0 0	—
	Cutsdean, Manor	162	—	No return made	—	—
	Evesham, Manor	—	—	No return made	—	—
	Total for the County of Worcester	—	14	-	30 0 0	—
Yorkshire	East Riding	1,217,127	12	Superintendents of Police (total)	196 11 10	—
	North Riding		16	Inspectors of Police	—	Expenses incurred.
	West Riding		*21*	No return made*	—	—
	Bradford, Borough	106,218	*1*	Not stated	*120 0 0*	—
	Beverley, Borough	9,654	1	Assistant Overseer	15 0 0	—
	Doncaster, Borough	16,406	1	Chief Superintendent of Police	—	22 16 2
	Hedon, Borough	—	—	Transferred to E. R. of County	—	—
	Halifax. See Wakefield, Manor.	—	—			
	Kingston-on-Hull, Borough	97,661	1	-	50 0 0	10 0 0
	Leeds, Borough	207,165	1	-	80 0 0	—
	Middlesboro', Borough	18,992	1	Inspector of Police	5 4 0	—
	Pontefract, Borough	5,346	1	Superintendent of Police	5 0 0	—
	Richmond, Borough	4,290	1	Police Officer	—	—
	Ripon, City, Borough, and Liberty.	6,172	1	Superintendent of Police	—	0 13 3
	Scarborough, Borough	18,377	1	House Agent	30 0 0	—
	Sheffield, Borough	185,172	3	-	100 0 0 65 0 0 100 0 0	—

* It appears from the Parliamentary Return, No. 95 of 1867, that out of 21 Inspectors in the West Riding, 15 were appointed before the establishment of the County Police, and received 1*l.* 11*s.* 6*d.* a day when on duty, besides 10*s.* 6*d.* for attendance before the magistrates. The remaining six were police inspectors, and were paid at various rates when on duty.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
YORKSHIRE—*cont.*	Sheffield, Town	—	—	No return made	—	—
	York, City	40,433	1	Gas Meter Inspector	20 0 0	5 0 0
	Burlington, Manor	—	—	Transferred to E. R. of County	—	—
	Eccleshall Bierlow, Manor	—	—	Transferred to Borough of Sheffield.		—
	Honley, &c., Manor	—	—	No Standards kept	—	—
	Leeds, Kirkgate, &c., Manor	—	—	Not stated	—	—
	Wakefield, Manor and Town of Halifax.	60,164	—	No return. *Inspection by Leet Jury.*		—
	Total for the County of Yorkshire	—	63		786 15 10	38 9 5

WALES.

ANGLESEA	County	54,609	2	Inspectors of Police	14*s.* a day each during employment.	
	Total for the County of Anglesea	—	2		—	—
BRECON	County	56,392	2	Superintendents of Police	—	33 3 7
	Brecon, Borough	5,235	1	" "	5 0 0	1 1 9
	Total for the County of Brecon	—	3		5 0 0	34 5 4
CAERMARTHEN	County	100,151	3		100 0 0	—
	Caermarthen, County of Borough	9,993	*1*	No return made	—	—
	Kidwelly, Borough	1,652	1		3 0 0	—
	Llanelly, Parish	—	—	Transferred to County	—	—
	Total for the County of Caermarthen	—	5		103 0 0	—
CAERNARVON	County	92,876	5	Police Officers	—	—
	Pwllheli, Borough	2,818	*1*	No return made	*1 1 0*	—
	Total for the County of Caernarvon	—	6		1 1 0	—
CARDIGAN	County	72,245	1	Superintendent of Police	—	—
	Total for the County of Cardigan	—	1	——	—	—
DENBIGH	County	100,778	2	Superintendents of Police	—	7 3 11
	Denbigh, Borough	—	—	Transferred to County	—	—
	Total for the County of Denbigh	—	2		—	7 3 11
FLINT	3 Subdivisions of the County, viz.:—					
	Holywell	66,309	1	Superintendent of Police	10 17 6	—
	Mold		1	" "	9 7 6	—
	Overton		1	" "	1 19 2	—
	Flint, Borough	3,428	—	No return made. *Included in County.*		—
	Total for the County of Flint	—	3		22 4 2	—
GLAMORGAN	4 Subdivisions of the County, viz.:—					
	Merthyr	276,046	1	Superintendent of Police	—	18 14 0
	Newbridge		1	" "	—	11 18 0
	Ogmore		1	" "	—	4 0 0
	Swansea		1	" "	—	18 17 7
	Cardiff, Borough	—	—	Transferred to County	—	—
	Swansea, Borough	41,606	1	Whitesmith	37 14 0	—
	Total for the County of Glamorgan	—	5		37 14 0	53 9 7
MERIONETH	County	38,963	1	Inspector of Police	—	—
	Total for the County of Merioneth	—	1	——	—	—
MONTGOMERY	County	66,919	1	Police Officer	32 4 7	—
	Total for the County of Montgomery	—	1		32 4 7	—

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
PEMBROKE -	County - - - -	86,277	6	Superintendents of Police -	5 5 0	—
	Haverfordwest, Town and County of.	7,019	1	Cutler, &c. - - -	6 0 0	—
	Tenby, Borough - -	2,982	1	Head Constable - -	—	—
	Total for the County of Pembroke - -	—	8	- - - - -	11 5 0	—
RADNOR - -	County - - - -	24,536	2	Superintendents of Police -	—	—
	Rhayader, Borough - -	846	—	No return made - -	—	—
	Total for the County of Radnor - -	—	2	—	—	

SCOTLAND.

ABERDEEN -	3 Districts of the County -	167,193	3	Inspector of Police - -	30 0 0*	—
	Aberdeen, Royal Burgh -	54,376	1	Dean of Guild's Officer -	30 0 0	48 17 7
	Total for the County of Aberdeen - -	221,569	4		60 0 0	48 17 7
ARGYLL - -	County - - - -	71,751	2	Clerk of the Peace - -	5 0 0	—
				Chief Constable - -	—	—
	Campbelltown - - -	6,033	1	Sheriff's Officer - -	—	—
	Oban, Burgh - - -	1,940	—	—	—	—
	Total for the County of Argyll - -	79,724	3	- - - - -	5 0 0	—
AYR - -	County - - - -	165,817	5	Police Officers - -	—	—
	Ayr, Royal Burgh - -	8,222	1	No return made - -	—	—
	Irvine, Royal Burgh - -	4,229	1	Tinsmith - - -	6 0 0	7 19 2
	Kilmarnock, Burgh - -	20,703	1	Town Officer - - -	5 4 0	—
	Total for the County of Ayr - - -	198,971	8	- - - - -	11 4 0	7 19 2
BANFF - -	- - - - -	59,215	1	Superintendent of Police -	1 11 5	—
	Banff, Royal Burgh - -	—	—	Transferred to County -	—	—
	Total for the County of Banff - -	59,215	1	- - - - -	1 11 5	—
BERWICK - -	- - - - -	35,492	1	Surveyor - - -	40 0 0	—
	Lander, Royal Burgh - -	1,121	1	Land Surveyor - -	—	—
	Total for the County of Berwick - -	36,613	2	- - - - -	40 0 0	—
BUTE - -	County - - - -	9,209	1	Joiner - - -	15 0 0	—
	Rothsay, Royal Burgh - -	7,122	1	„ - - -	12 10 0	—
	Total for the County of Bute - -	16,331	2	- - - - -	27 10 0	—
CAITHNESS -	County - - - -	39,560	1	Police Officer - - -	—	—
	Wick, Royal Burgh - -	1,551	—	No Standards in use - -	—	—
	Total for the County of Caithness - -	41,111	1	—	—	—
CLACKMANNAN -	County - - - -	21,450	1	No return made - -	—	*Adjusting Fees.*
	Total for the County of Clackmannan -	21,450	1	—	—	—
CROMARTY -	County - - - -	For Population see Ross.	1	Grocer - - -	15 0 0	0 12 8
	Total for the County of Cromarty - -	—	1	- - - - -	15 0 0	0 12 8
DUMBARTON -	County - - - -	45,938	1	Police Officer - -	15 0 0	21 0 0
	Dumbarton, Royal Burgh -	6,096	1	Blacksmith - - -	2 0 0	—
	Total for the County of Dumbarton - -	52,034	2	- - - - -	17 0 0	21 0 0
DUMFRIES - -	County - - - -	57,317	1	Chief Constable - -	—	—
			1	Serjeant of Police - -	5 0 0	—
	Annan, Royal Burgh - -	4,620	—	No return made - -	—	—
	Dumfries, Royal Burgh - -	12,313	1	Chief Constable - -	10 0 0	—
	Sanquhar, Royal Burgh - -	1,628	—	No return made - -	—	—
	Total for the County of Dumfries - -	75,878	3	- - - - -	15 0 0	—

* Or 10*l.* each.

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
Edinburgh	County	177,222	1	Police Officer	75 0 0	31 13 9
	Edinburgh, City of	66,429	3	No other occupation	220 0 0	—
	Leith, Burgh	30,346	1	Smith	—	55 13 4
	Total for the County of Edinburgh	273,997	5		295 0 0	67 7 1
Elgin	County	36,292	1	Clergyman	5 0 0	—
	Elgin, Royal Burgh	6,403	1	Burgh Officer	—	3 0 7
	Total for the County of Elgin	42,695	2		5 0 0	3 0 7
Fife	County	129,100	1	Jeweller	50 0 0	—
	Anstruther, East, Royal Burgh	1,154	1	No return made	—	—
	Burnt-island, Royal Burgh	2,595	—	—	—	—
	Crail, Royal Burgh	—	—	Transferred to County	—	—
	Cupar, Royal Burgh	—	—	Transferred to County	—	—
	Dunfermline, Royal Burgh	8,402	1	Watchmaker	—	2 4 1
	Inverkeithing, Royal Burgh	1,512	1	Town Officer	—	0 18 0
	Kinghorn, Royal Burgh	—	—	Transferred to County	—	—
	Kirkcaldy, Royal Burgh	5,195	1	Town Officer	—	3 9 3
	Pittenweem, Royal Burgh	1,671	1	Joiner	—	—
	St. Andrews, City and Royal Burgh	5,141	1	Watchmaker	4 4 0	0 16 0
	Total for the County of Fife	154,770	7		54 4 0	7 7 4
Forfar	County	139,696	1	Superintendent of Police	—	—
	Arbroath, Royal Burgh	8,143	1	Blacksmith	3 3 0	9 7 4
	Brechin, Royal Burgh	4,720	1	„	—	—
	Dundee, Royal Burgh	29,165	1	Town Council Officer	32 0 0	—
	Forfar, Royal Burgh	9,258	1	Superintendent of Police	10 0 0	—
	Montrose, Royal Burgh	13,443	1	Burgh Officer	—	—
	Total for the County of Forfar	204,425	6		45 3 0	9 7 4
Haddington	County	33,138	3	Chief Constable	—	—
				Blacksmith	—	0 16 3
				Plumber	—	0 8 10
	Berwick, North, Royal Burgh	700	1	„	—	—
	Dunbar, Royal Burgh	3,796	1	„	—	0 17 8
	Total for the County of Haddington	37,634	5		—	2 2 9
Inverness	County	79,495	3	Superintendents of Police	—	Adjusting Fees.
	Inverness, Royal Burgh	9,393	1		20 0 0	7 0 0
	Total for the County of Inverness	88,888	4		20 0 0	7 0 0
Kincardine		34,466	1	Gunmaker	10 0 0	2 4 10
	Total for the County of Kincardine	34,466	1		10 0 0	2 4 10
Kinross	County	7,977	1	Sheriff Officer	—	—
	Total for the County of Kinross	7,977	1	—	—	—
Kirkcudbright	County	39,857	1	Chief Constable	—	—
	Kirkcudbright, Burgh	2,638	1	„	—	—
	Total for the County of Kirkcudbright	42,495	2	—	—	—
Lanark	Divided into 3 Wards:—					
	Upper Ward		1	Police Officer	—	—
	Middle Ward, divided into 4 Districts:—					
	Airdrie	231,318	1	„	—	—
	Coatbridge		1	„	—	—
	Hamilton		1	„	—	—
	Wishaw		1	„	—	—
	Lower Ward	—	1	„	—	—
	Airdrie, Burgh	—	1	Superintendent of Police	20 0 0	—
	Calton, Burgh	—	—	Transferred to City of Glasgow	—	—
	Glasgow, City, in 3 Districts and 2 Burghs:—					
	Central District	394,864	1	No other	5 4 0	204 0 4
	Eastern „		1	„	12 4 0	54 8 5
	Western „		1	„	10 16 0	162 15 1
	Calton, Burgh		—	Transferred to City of Glasgow	—	—
	Gorbals, Barony		—	Transferred to City of Glasgow	—	—

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
LANARK—*cont.*	Lanark, Royal Burgh	5,384	1	Weaving Agent	—	—
	Partick, Burgh		—	Transferred to County	—	—
	Total for the County of Lanark	631,566	11		48 4 0	421 3 10
LINLITHGOW	County	38,645	*1*	No return made	—	*Adjusting Fees, &c.*
	Total for the County of Linlithgow	38,645	1		—	—
NAIRN	County	6,238	1		—	—
	Burgh	3,827				
	Total for the County of Nairn	10,065	1		—	—
ORKNEY	County	32,395	1	Gaoler, &c.	10 0 0	31 14 2
	Total for the County of Orkney	32,395	1		10 0 0	31 14 2
PEEBLES	County	9,363	1	Chief Constable	—	—
	Peebles, Royal Burgh	2,045	1	Druggist	—	0 1 11
	Total for the County of Peebles	11,408	2		—	0 1 11
PERTH	County	119,169	1	Police Officer	54 12 0	—
	Culross, Royal Burgh	517	—		—	—
	Perth, City and Burgh	13,814	1	Watchmaker	—	20 0 0
	Total for the County of Perth	133,500	2		54 12 0	20 0 0
RENFREW	County	126,743	2		7 0 0	3 0 7
	Paisley, Burgh	47,406	1	Smith	—	33 6 3
	Pollocksheils, Burgh	—	—	No Standards in use	—	—
	Renfrew, Royal Burgh	3,412	1	Serjeant of Police	—	0 8 5
	Total for the County of Renfrew	177,561	4		7 0 0	36 15 3
ROSS	County	79,087	7	Police Officers	—	—
	Tain, Royal Burgh	2,319	1	Police Officer	—	—
	Total for the County of Ross	81,406	8		—	—
ROXBURGH	County	54,119	1	Police Officer	61 4 8	—
	Total for the County of Roxburgh	54,119	1		61 4 8	—
SELKIRK	County and Royal Burgh	10,449	1		5 0 0	7 0 0
	Total for the County of Selkirk	10,449	1		5 0 0	7 0 0
STIRLING	County	72,625	1	Smith and Beam Maker	15 0 0	—
	Falkirk, Parliamentary Burgh	9,030	1	Engineer	3 0 0	—
	Stirling, Royal Burgh	10,271	1	Beam Maker	—	1 15 0
	Total for the County of Stirling	91,826	3		18 0 0	1 15 0
SUTHERLAND	County	25,246	1	Chief Constable	—	—
	Total for the County of Sutherland	25,246	1		—	—
WIGTOWN	County and Royal Burgh	38,115	2	1 Chief Constable 1 Watch Maker	Fees for Stamping and Adjusting.	
	Stranraer, Royal Burgh	80	1		„	2 11 0
	Total for the County of Wigtown	42,095	3		—	2 11 0
ZETLAND	Lordship	—	*1*	No return made	*12 14 0*	—
	Total for the County of Zetland	31,670	1		12 14 0	—

App. III.—*cont.*—Abstract F. of Returns from Local Inspectors of Weights and Measures, Great Britain—*cont.*

County.	District, City, Town, &c.	Population of Inspectors' Districts in 1861.	Number of Inspectors.	If a Police Officer, or of any other Occupation.	Amount of Salary.	Amount of other Emoluments.
					£ s. d.	£ s. d.
Jersey, Isle of	- - - - -	—	2	The Inspector is the Viscount or High Sheriff of Jersey, to whom the supervision of weights and measures belongs. The present Viscount is Col. John Le Couteur. The Sub-Inspector is Mr. G. C. Godfrey.	None.	9 15 6
Man, Isle of	- - - - -	—	1*	The Regulator of Weights and Measures is also the Public Prosecutor, who is assisted by the High Bailiffs of each of these districts.	None.	54 9 5
	Douglas District - -	—	1		None.	8 9 0
	Ramsey District - -	—	1		None.	10 3 6
	Castletown District - -	—	1		No return	1 2 4
	Peel District - - -	—	1		No return	1 2 4
	Total for the Isle of Man	—	5	- - - - -	—	75 6 7

SUMMARY OF ABSTRACT F.

ENGLAND.

Counties.	No. of Inspectors.	Amount of Salary.	Amount of other Emoluments.	Counties.	No. of Inspectors.	Amount of Salary.	Amount of other Emoluments.
		£ s. d.	£ s. d.			£ s. d.	£ s. d.
Bedford - -	5	60 0 0	—	Middlesex - -	9	1,020 0 0	597 8 9
Berks - - -	13	120 0 0	2 11 0	Monmouth - -	3	90 0 0	56 17 1
Bucks - - -	8	5 5 0	—	Norfolk - -	22	160 4 0	14 1 6
Cambridge - -	6	66 13 4	—	Northampton - -	11	10 0 0	—
Chester - -	14	170 0 0	229 19 4	Northumberland -	9	180 0 0	31 0 0
Cornwall - -	16	27 0 0	75 11 9	Nottingham - -	9	157 0 0	—
Cumberland - -	9	39 11 8	29 3 4	Oxford - -	13	40 0 0	—
Derby - - -	12	25 0 0	95 5 6	Rutland - -	1	—	—
Devon - - -	26	97 2 0	45 4 6	Salop - - -	7	183 0 0	3 14 10
Dorset - - -	12	10 0 0	18 14 4	Somerset - -	26	591 7 0	23 19 0
Durham - -	15	259 5 0	74 16 0	Stafford - -	9	428 0 0	40 14 4
Essex - - -	20	62 0 0	131 0 0	Suffolk - -	16	98 8 0	—
Gloucester - -	10	15 0 0	—	Surrey - -	13	915 0 0	737 17 0
Hants - - -	17	145 0 0	—	Sussex - -	17	310 0 0	49 12 3
Hereford - -	11	72 10 0	—	Warwick - -	13	360 0 0	28 6 8
Herts - - -	3	—	5 1 3	Westmoreland -	2	—	—
Huntingdon - -	5	—	—	Wilts - - -	11	15 0 0	110 3 0
Kent - - -	35	456 18 0	420 19 3	Worcester - -	14	30 0 0	—
Lancaster - -	36	1,802 0 0	35 15 7	York - - -	63	786 15 10	38 9 5
Leicester - -	9	70 0 0	—				
Lincoln - -	20	234 0 0	3 10 4	Total for England	570	9,121 19 10	2,899 16 3

WALES.

Anglesea - -	2	—	—	Glamorgan - -	5	37 14 0	53 9 7
Brecon - -	3	5 0 0	34 5 4	Merioneth - -	1	—	—
Carmarthen - -	5	103 0 0	—	Montgomery - -	1	32 4 7	—
Cardigan - -	1	—	—	Pembroke - -	8	11 5 0	—
Carnarvon - -	6	1 1 0	—	Radnor - -	2	—	—
Denbigh - -	2	—	7 3 11				
Flint - - -	3	22 4 2	—	Total for Wales	39	212 8 9	94 18 10

* A "Regulator" of Weights and Measures.

Appendix III.—*continued.*—Summary of Abstract F.—*continued.*

SCOTLAND.

Counties.	No. of Inspectors.	Amount of Salary.	Amount of other Emoluments.	Counties.	No. of Inspectors.	Amount of Salary.	Amount of other Emoluments.
		£ s. d.	£ s. d.			£ s. d.	£ s. d.
Aberdeen - -	4	60 0 0	48 17 7	Kincardine - -	1	10 0 0	2 4 10
Argyll - -	2	5 0 0	—	Kinross - -	1	—	—
Ayr - - -	8	11 4 0	7 19 2	Lanark - -	11	48 4 0	421 3 10
Banff - - -	1	1 11 5	—	Linlithgow - -	1	—	—
Berwick - -	2	40 0 0	—	Nairn - - -	1	—	—
Bute - - -	2	27 10 0	—	Orkney - -	1	10 0 0	31 14 2
Caithness - -	1	—	—	Peebles - -	2	—	0 1 11
Clackmannan - -	1	—	—	Perth - - -	2	54 12 0	20 0 0
Cromarty - -	1	15 0 0	0 12 8	Renfrew - -	4	7 0 0	36 15 3
Dumbarton - -	2	17 0 0	21 0 0	Ross - - -	8	—	—
Dumfries - -	3	15 0 0	—	Roxburgh - -	1	61 4 8	—
Edinburgh - -	5	295 0 0	67 7 1	Selkirk - -	1	5 0 0	7 0 0
Elgin - - -	2	5 0 0	3 0 7	Stirling - -	3	18 0 0	1 15 0
Fife - - -	7	54 4 0	7 7 4	Sutherland - -	1	—	—
Forfar - -	6	45 3 0	9 7 4	Wigtown - -	3	—	2 11 0
Haddington - -	5	—	2 2 9	Zetland - -	1	12 14 0	—
Inverness - -	4	20 0 0	7 0 0				
Kirkcudbright -	2	—	—	Total for Scotland	100	838 7 1	698 0 6

—	No. of Inspectors.	Amount of Salary.	Amount of other Emoluments.
		£ s. d.	£ s. d.
ENGLAND - - -	570	9,121 19 10	2,899 16 3
WALES - - -	39	212 8 9	94 18 10
SCOTLAND - - -	100	838 7 1	698 0 6
TOTAL FOR GREAT BRITAIN - -	709	10,172 15 8	3,692 15 7

Jersey, Island of - -	2	—	9 15 6
Man, Island of - -	5	—	75 6 7

Standards Department, Board of Trade,
November 18, 1868.

H. W. Chisholm,
Warden of the Standards.

APPENDIX IV.

Abstracts of Returns from the Local Inspectors of Weights and Measures in Ireland, for the Year ended 31st December 1866, with Remarks by the Warden of the Standards.

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Abstract A.—Number of Standards and of Sub-Standards used by Inspectors, and when last verified.

Note.—The 13 avoirdupois sub-standard weights which are generally used by the inspectors are the weights from 56 lbs. to 4 dr. inclusive, the smaller weights not being in use. When less than 10 measures of capacity are stated, the larger measures are generally omitted. The gill is frequently called a naggin, and the half gill or half naggin, a glass. The half glass, which appears to be frequently used as a sub-standard in Ireland, is consequently equal to a quarter gill, of which there is no existing standard, the smallest standard measure of capacity being the half gill. *As to the number of standards stated to be in use, see remarks of the Warden of the Standards appended.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Antrim - -	26 Petty Sessional Districts of the County, including the City of Belfast and the County of the Town of Carrickfergus, viz. :—											
	1. Ahoghill - - -	—	—	—	—	—	- - -	13	10	1	24	April 20, 1866.
	2. Antrim - - -	—	—	—	—	—	- - -	13	10	1	24	May 13, 1867.
	3. Ballycastle - - -	—	—	—	—	—	- - -	13	10	1	24	Sept. 4, 1866.
	4. Ballyclare - - -	—	—	—	—	—	- - -	13	12†	1	26	Jan. 16, 1866.
	5. Ballymena - - -	—	—	—	—	—	- - -	13	10	1	24	Nov. 23, 1866.
	6. Ballymoney - - -	—	—	—	—	—	- - -	13	10	1	24	May 3, 1867.
	7. Belfast, East - - -	—	—	—	—	—	- - -	14*	8†	—	22	Nov. 7, 1867.
	8. Do. South - -	—	—	—	—	—	- - -	14*	8†	—	22	„ „
	9. Do. North - -	—	—	—	—	—	- - -	13	9	—	22	„ „
	10. Do. West - -	—	—	—	—	—	- - -	13	10	1	24	Dec. 4, 1867.
	11. Bushmills - - -	—	—	—	—	—	- - -	12	7	1	20	July 26, 1866.
	12. Carrickfergus, County of, Town.	16	10	1	27	1	Not known -	13	11†	1	25	June 29, 1866.
	13. Carrickfergus, Petty Sess. Div.	—	—	—	—	—	- - -	13	11†	1	25	Jan. 16, 1866.
	14. Cushendale - - -	—	—	—	—	—	- - -	14	11‡	1	26	May 3, 1867.
	15. Crumlin - - -	—	—	—	—	—	- - -	13	11†	1	25	May 6, 1867.
	16. Dervock - - -	—	—	—	—	—	- - -	13	11†	1	25	April 23, 1866.
	17. Glenarm - - -	—	—	—	—	—	- - -	13	11‡	1	25	May 3, 1867.
	18. Killagan - - -	—	—	—	—	—	- - -	13	10	1	24	„ „
	19. Larne - - - -	—	—	—	—	—	- - -	13	10	1	24	„ „
	20. Lisburn - - -	—	—	—	—	—	- - -	13	11†	1	25	May 6, 1867.
	21. Parkgate - - -	—	—	—	—	—	- - -	13	11†	1	25	May 13, 1867.
	22. Portglenone - -	—	—	—	—	—	- - -	13	10	1	24	April 13, 1866.
	23. Randalstown - -	—	—	—	—	—	- - -	13	10	1	24	May 13, 1867.
	24. Rasharkin - - -	—	—	—	—	—	- - -	13	11†	1	25	May 3, 1867.
	25. Toome - - -	—	—	—	—	—	- - -	13	10	1	24	June 21, 1866.
	26. Whitehouse - - -	—	—	—	—	—	- - -	13	11†	1	25	Jan. 16, 1866.
	Total for the County of Antrim - - -	16	10	1	27	1		340	264	23	627	
Armagh - -	16 Petty Sessional Districts of the County, viz.:—											
	1. Armagh - - -	—	—	—	—	—	- - -	16	11†	1	28	June 15, 1866.
	2. Ballybot - - -	16	10	1	27	1	Not stated -	1	1	1	3	July 26, 1866.
	3. Charlemont - - -	—	—	—	—	—	- - -	16	11†	1	28	June 28, 1866.
	4. Clonmacate - - -	—	—	—	—	—	- - -	16	10	1	27	Aug. 9, 1866.
	5. Crossmaglen - -	—	—	—	—	—	- - -	16	11†	1	28	July 26, 1866.
	6. Forkhill - - -	—	—	—	—	—	- - -	14	10	1	25	„ „
	7. Keady - - - -	—	—	—	—	—	- - -	16	11†	1	28	Aug. 6, 1866.
	8. Lurgan, Town - -	—	—	—	—	—	- - -	14	10	1	25	Aug. 9, 1866.
	9. Loughgall, Town - -	—	—	—	—	—	- - -	16	11†	1	28	July 3, 1866.

* Including a sub-standard of "3½ lbs.," of which there is no existing standard.
† Including a sub-standard of "¼ gill."
‡ Including a sub-standard of "one half glass."

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures. Capacity.	Number of Standard Measures. Length.	Total. Number of Standards.	Total. Number of Sets and Indentures.	When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures. Capacity.	Number of Measures. Length.	Total.	When last locally verified.
Armagh—*cont.*	10. Markethill	—	—	—	—	—	—	16	10	1	28	Aug. 6, 1866
	11. Middletown	—	—	—	—	—	—	16	11*	1	27	„ „
	12. Newtownhamilton	—	—	—	—	—	—	16	10	1	27	„ „
	13. Portadown, Town	—	—	—	—	—	—	16	11*	1	28	Aug. 9, 1866.
	14. Do. Petty Sess.	—	—	—	—	—	—	16	8*	1	25	„ „
	15. Poyntzpass	16	10	1	27	1	Not stated	1	1	1	3	July 26, 1866.
	16. Tynam	—	—	—	—	—	—	16	11*	1	28	Aug. 6, 1866.
	Total for the County of Armagh	32	20	2	54	2		222	148	16	386	
Carlow	7. Petty Sessional Districts of the County, viz.:—											
	1. Bagnalstown	—	—	—	—	—	—	13	10	1	24	June 15, 1866.
	2. Borris	—	—	—	—	—	—	13	10	1	24	May 21, 1867.
	3. Carlow	16	10	1	27	1	Jan. 16, 1862	13	10	1	24	„ „
	4. Fenagh	—	—	—	—	—	—	13	10	1	24	June 15, 1866.
	5. Hacketstown	—	—	—	—	—	—	13	10	1	24	May 21, 1867.
	6. Myshall	—	—	—	—	—	—	13	10	1	24	June 15, 1866.
	7. Tullow	—	—	—	—	—	—	13	10	1	24	May 21, 1867.
	Total for the County of Carlow	16	10	1	27	1		91	70	7	168	
Cavan	18 Petty Sessional Districts of the County, viz. :—											
	1. Arva	—	—	—	—	—	—	12	9	1	22	Not stated.
	2. Bailieboro	—	—	—	—	—	—	13	9	1	23	Aug. 7, 1865.
	3. Belturbet	—	—	—	—	—	—	13	9	1	23	May 11, 1867.
	4. Ballyconnell	—	—	—	—	—	—	13	9	1	23	Not stated.
	5. Ballinagh	—	—	—	—	—	—	13	7	1	21	May 17, 1867.
	6. Bally, Jas. Duff	—	—	—	—	—	—	13	9	1	23	„ „
	7. Bawnboy	—	—	—	—	—	—	13	8	1	22	May 11, 1867.
	8. Cavan	16	10	1	27	1	April 1863	13	9	1	23	„ „
	9. Cootehill	13	7	1	21	1	Not stated	13	9	1	23	May 16, 1867.
	10. Killyglasson	—	—	—	—	—	—	13	8	1	22	May 17, 1867.
	11. Kingscourt	—	—	—	—	—	—	13	9	1	23	Aug. 8, 1865.
	12. Killeshandna	—	—	—	—	—	—	13	9	1	23	Not stated.
	13. Kilnalec	—	—	—	—	—	—	13	8	1	22	May 17, 1867.
	14. Mullagh	—	—	—	—	—	—	13	7	1	21	Aug. 7, 1865.
	15. Mountnugent	—	—	—	—	—	—	13	8	1	22	May 17, 1867.
	16. Shercock	—	—	—	—	—	—	13	8	1	22	Aug. 8, 1865.
	17. Swanlinbar	—	—	—	—	—	—	13	9	1	23	May 17, 1867.
	18. Virginia	—	—	—	—	—	—	13	8	1	22	„ „
	Total for the County of Cavan	29	17	2	48	2		233	152	18	403	
Clare	20 Petty Sessional Districts of the County, viz. :—											
	1. Ballyvaughan	—	—	—	—	—	—	16	7	1	24	July 24, 1867.
	2. Broadford	—	—	—	—	—	—	16	7	—	23	„ „
	3. Carriganholt	—	—	—	—	—	—	16	7	1	24	„ „
	4. Corofin	—	—	—	—	—	—	16	10	1	27	„ „
	5. Crusheen	—	—	—	—	—	—	16	7	1	24	„ „
	6. Doonass	—	—	—	—	—	—	16	7	1	24	„ „
	7. Ennis, Town	16	10	1	27	1	Not known	16	10	1	27	„ „
	8. Ennistymon	—	—	—	—	—	—	16	10	1	27	„ „
	9. Feakle	—	—	—	—	—	—	16	7	1	24	„ „
	10. Kildysart	—	—	—	—	—	—	16	7	1	24	„ „
	11. Kilkee	—	—	—	—	—	—	16	7	1	24	„ „
	12. Killaloe	—	—	—	—	—	—	16	10	1	26	„ „
	13. Kilrush	—	—	—	—	—	—	16	10	1	27	„ „
	14. Knock	—	—	—	—	—	—	16	7	1	24	„ „
	15. Miltown Malbary	—	—	—	—	—	—	16	7	1	24	„ „
	16. Newmarket-on-Fergus	—	—	—	—	—	—	16	7	1	24	„ „
	17. Quin	—	—	—	—	—	—	16	7	1	24	Oct. 4, 1867.
	18. Six Mile Bridge	—	—	—	—	—	—	16	10	1	27	July 24, 1867.
	19. Tomgraney	—	—	—	—	—	—	16	7	1	24	„ „
	20. Tulla	—	—	—	—	—	—	16	7	1	24	„ „
	Total for the County of Clare	16	10	1	27	1		319	158	19	496	
Cork, West Riding.	22 Petty Sessional Districts of the West Riding, viz. :—											
	1. Ballinspittle	—	—	—	—	—	—	13	7	—†	20	Sept. 29, 1866.
	2. Ballydehob	—	—	—	—	—	—	13	7	—	20	June 12, 1866.
	3. Ballyvourney	—	—	—	—	—	—	13	7	—	20	Aug. 16, 1866.

* Including a sub-standard of "¼ gill."

† No sub-standards of *Length* appear to be used in the County of Cork.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Cork, West Riding —*cont.*	4. Bandon	—	—	—	—	—	—	13	7	—	20	Aug. 16, 1866.
	5. Bantry	—	—	—	—	—	—	13	7	—	20	„ „
	6. Carrigboy	—	—	—	—	—	—	13	7	—	20	„ „
	7. Castletown	—	—	—	—	—	—	13	7	—	20	June 19, 1866.
	8. Clonakilty	—	—	—	—	—	—	13	7	—	20	Sept. 29, 1866.
	9. Dromoleaghue	—	—	—	—	—	—	13	7	—	50	„ „
	10. Dunmanway Town	—	—	—	—	—	—	13	7	—	20	June 19, 1866.
	11. Do. Petty Sess. Div.	—	—	—	—	—	—	13	7	—	20	„ „
	12. Goleen	—	—	—	—	—	—	13	7	—	20	June 13, 1866.
	13. Innishannon	—	—	—	—	—	—	13	7	—	20	June 19, 1866.
	14. Macroon	—	—	—	—	—	—	13	7	—	20	Sept. 29, 1866.
	15. Millstreet	—	—	—	—	—	—	13	7	—	20	Aug. 16, 1866.
	16. Reinmeen	—	—	—	—	—	—	13	7	—	20	„ „
	17. Rosscarberry	—	—	—	—	—	—	13	7	—	20	Sept. 29, 1866.
	18. Shandangan	—	—	—	—	—	—	13	7	—	20	Aug. 16, 1866.
	19. Skibbereen	—	—	—	—	—	—	13	7	—	20	May 31, 1866.
	20. Skull	—	—	—	—	—	—	13	7	—	20	June 13, 1866.
	21. Timoleague	—	—	—	—	—	—	13	7	—	20	Sept. 29, 1866.
	22. Union Hall	—	—	—	—	—	—	13	9	—	22	May 31, 1866.
	Total for West Riding of Cork	—	—	—	—	—	—	286	156	—	442	
Cork, East Riding	33. Petty Sessional Districts of the East Riding, including the City of Cork, viz.:—											
	1. Ahadalane	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	2. Ballymartel	—	—	—	—	—	—	13	7	—	20	„ „
	3. Blarney	—	—	—	—	—	—	13	7	—	20	„ „
	4. Buttevant	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	5. Carrigaline	—	—	—	—	—	—	13	7	—	20	Mar. 8, 1866.
	6. Castlemarty	—	—	—	—	—	—	13	7	—	23	Jan. 25, 1867.
	7. Castletownroche	—	—	—	—	—	—	13	7	—	20	„ „
	8. Cecilstown	—	—	—	—	—	—	13	7	—	20	Jan. 24, 1867.
	9. Charleville	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	10. Cloyne	—	—	—	—	—	—	13	—	—	13	Jan. 18, 1867.
	11. Coachford	—	—	—	—	—	—	13	7	—	20	„ „
	12. Cork, City of	16	7	1	24	1	Sept. 5, 1867	13	7	—	20	Jan. 9, 1866.
	Do. do.	—	—	—	—	—	—	13	7	—	20	Jan. 29, 1866.
	Do. do.	—	—	—	—	—	—	13	7	—	20	„ „
	13. Conna	—	—	—	—	—	—	13	7	—	20	Jan. 24, 1867.
	14. Doneraile	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	15. Douglas	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1866.
	16. Farran	—	—	—	—	—	—	13	7	—	20	„ „
	17. Fermoy	—	—	—	—	—	—	13	8*	—	21	Jan. 24, 1867.
	18. Kanturk	—	—	—	—	—	—	13	7	—	20	„ „
	19. Kildovery	—	—	—	—	—	—	13	7	—	20	„ „
	20. Kinsale, Borough	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	21. Knocknagree	—	—	—	—	—	—	13	7	—	20	„ „
	22. Liscarrell	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	23. Lisheens	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	24. Mallow	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	25. Middleton	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	26. Mitchelstown	—	—	—	—	—	—	13	7	—	20	Jan. 24, 1867.
	27. Newmarket	—	—	—	—	—	—	13	7	—	20	„ „
	28. Passagewest	13	7	—	20	1	Sept. 5, 1861	13	7	—	20	Mar. 29, 1866.
	29. Queenstown	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	30. Rathcormac	—	—	—	—	—	—	13	7	—	20	Jan. 24, 1867.
	31. Riverstown	—	—	—	—	—	—	13	7	—	20	Jan. 18, 1867.
	32. Tracton	—	—	—	—	—	—	13	7	—	20	„ „
	33. Youghal	—	—	—	—	—	—	13	7	—	20	Jan. 25, 1867.
	Total for East Riding, Cork	29	14	1	44	2	—	455	239	—	694	
Donegal	26 Petty Sessional Districts of the County, viz.:—											
	1. Ardara	—	—	—	—	—	—	13	8	1	22	Oct. 12, 1866.
	2. Avanmore	—	—	—	—	—	—	13	8	1	22	„ „
	3. Ballintra	—	—	—	—	—	—	13	8	1	22	„ „
	4. Ballyshannon	—	—	—	—	—	—	16	8	1	25	Oct. 11, 1866.
	5. Buncrana	—	—	—	—	—	—	16	8	1	25	Oct. 10, 1866.
	6. Burnfoot	—	—	—	—	—	—	13	8	1	22	Oct. 11, 1866.
	7. Bunbeg	—	—	—	—	—	—	16	8	1	25	Oct. 25, 1866.
	8. Carndonagh	—	—	—	—	—	—	15	8	1	24	Oct. 11, 1866.
	9. Churchill	—	—	—	—	—	—	13	8	1	22	Oct. 25, 1866.
	10. Donegal	—	—	—	—	—	—	16	8	1	25	Oct. 12, 1866.

* Including a sub-standard of "½ glass."

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Donegal—*cont.*	11. Dungloe	—	—	—	—	—	—	13	8	1	22	Oct. 12, 1866.
	12. Dunfanaghy	—	—	—	—	—	—	16	8	1	25	Oct. 25, 1866.
	13. Glenties	—	—	—	—	—	—	13	8	1	22	Oct. 12, 1866.
	14. Killybegs	—	—	—	—	—	—	16	8	1	25	„ „
	15. Letterkenny	—	—	—	—	—	—	16	10	1	27	Oct. 26, 1866.
	16. Lifford	—	—	—	—	—	—	13	8	1	22	Oct. 11, 1866.
	17. Malin	—	—	—	—	—	—	13	8	1	22	„ „
	18. Milford	—	—	—	—	—	—	16	11	1	28	Oct. 25, 1866.
	19. Moville	—	—	—	—	—	—	13	8	1	22	Oct. 11, 1867.
	20. Newtown Cunningham	—	—	—	—	—	—	15	8	1	24	Oct. 13, 1866.
	21. Pettigo	—	—	—	—	—	—	13	8	1	22	Oct. 11, 1866.
	22. Ramelton	—	—	—	—	—	—	16	10	1	27	Oct. 25, 1866.
	23. Rathmullan	—	—	—	—	—	—	16	8	1	25	„ „
	24. Raphoe	17	10	1	28	1	June 3, 1862	16	8	1	25	Oct. 12, 1866.
	25. Stranolar	—	—	—	—	—	—	13	8	1	22	„ „
	26. Tamney	—	—	—	—	—	—	15	8	1	24	Oct. 25, 1866.
	Total for the County of Donegal	17	10	1	28	1	—	377	215	26	618	
Down	26 Petty Sessional Districts of the County, viz.:—											
	1. Ardglass and Killough	—	—	—	—	—	—	16	10	1	27	July 19, 1867.
	2. Ballynahinch, sub-district of Killinch.	—	—	—	—	—	—	16	11*	1	28	Nov. 7, 1866.
	3. Ballynahinch, Petty Sessional district.	—	—	—	—	—	—	16	11*	1	28	June 26, 1867.
	4. Banbridge	—	—	—	—	—	—	16	11*	1	28	Nov. 7, 1866.
	5. Bangor	—	—	—	—	—	—	16	10	1	27	Nov. 10, 1866.
	6. Castlewellan	—	—	—	—	—	—	16	11*	1	28	Feb. 16, 1866.
	7. Donaghadee	—	—	—	—	—	—	16	11*	1	28	Aug. 5, 1867.
	8. Downpatrick	—	—	—	—	—	—	16	10	1	27	July 15, 1867.
	9. Dromara	—	—	—	—	—	—	16	11*	1	28	June 26, 1867.
	10. Dromore	—	—	—	—	—	—	16	10	1	27	July 20, 1867.
	11. Gilford	—	—	—	—	—	—	16	10	1	27	Sept. 18, 1867.
	12. Greyabbey	—	—	—	—	—	—	16	10	1	27	May 22, 1866.
	13. Hillsboro'	—	—	—	—	—	—	16	10	1	27	Aug. 12, 1867.
	14. Kilkeel	—	—	—	—	—	—	16	11*	1	28	Feb. 16, 1866.
	Killough. *See* Ardglass.											
	15. Killyleagh	—	—	—	—	—	—	16	10	1	27	July 22, 1867.
	16. Moira	—	—	—	—	—	—	16	11*	1	28	June 1, 1867.
	17. Newry	—	—	—	—	—	—	16	10	1	27	Nov. 7, 1866.
	18. Newtonbreda	—	—	—	—	—	—	16	11†	1	28	May 25, 1857.
	19. Newtonards, sub-district of.	—	—	—	—	—	—	16	10	1	27	Nov. 7, 1866.
	20. Newtonards, sub-district of Holywood.	—	—	—	—	—	—	16	10	1	27	„ „
	21. Portaferry	—	—	—	—	—	—	16	10	1	27	Aug. 7, 1866.
	22. Rathfilland	—	—	—	—	—	—	16	11*	1	28	Feb. 19, 1867.
	23. Saintfield	—	—	—	—	—	—	16	11*	1	28	June 29, 1867.
	24. Seaford	—	—	—	—	—	—	16	11*	1	28	Feb. 16, 1866.
	25. Warrenpoint	—	—	—	—	—	—	16	11*	1	28	Nov. 7, 1866.
	26. Waringstown	—	—	—	—	—	—	16	11*	1	28	Oct. 7, 1867.
	Total for the County of Down	—	—	—	—	—	—	416	274	26	716	
Dublin	11 Petty Sessional Districts of the County, viz.:—											
	1. Balbriggan	—	—	—	—	—	—	16	6	1	23	Nov. 29, 1866.
	2. Blanchardstown	—	—	—	—	—	—	14	7	1	22	Sept. 9, 1866.
	3. Cabinteely	—	—	—	—	—	—	15	10	1	26	May 28, 1867.
	4. Drumcondra	—	—	—	—	—	—	16	9	1	26	May 28, 1866.
	5. Lucan	—	—	—	—	—	—	14	7	1	22	Aug. 1866.
	6. New Castle	—	—	—	—	—	—	15	7	1	23	May 25, 1866.
	7. Raheny	—	—	—	—	—	—	16	9	1	26	May 1, 1865.
	8. Rathfarnham	—	—	—	—	—	—	16	—	—	16	May 28, 1866.
	9. Swords	16	10	1	27	1	April 16, 1862	15	9	1	25	April 10, 1867.
	10. Tallaght	—	—	—	—	—	—	15	9	1	25	May 28, 1866.
	11. (Name of District not stated.)	—	—	—	—	—	—	16	9	1	26	„ „
	Total for the County of Dublin	16	10	1	27	1	—	194	91	11	296	
	Dublin, City of	—	—	—	—	—	—	26	9‡	1	36	Nov. 28, 1867.

* Including a sub-standard of "¼ gill."

† Including a standard of "½ glass."

‡ Including a 5-gallon measure.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Fermanagh -	13 Petty Sessional Districts of the County, viz.:—											
	1. Belleek - - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 17, 1867.
	2. Brookeboro - - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 14, 1867.
	3. Derrygonnelly - -	—	—	—	—	—	- - -	13*	7	1	20	Aug. 17, 1867.
	4. Derrylin - - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 15, 1867.
	5. Enniskillen - - -	16	10	1	27	1	June 27, 1863	13*	8†	1	22	„ „
	6. Irvinestown - - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 17, 1867.
	7. Kesh - - - -	—	—	—	—	—	- - -	13*	8†	1	22	„ „
	8. Lack - - - -	—	—	—	—	—	- - -	13*	7	1	21	Aug. 23, 1866.
	9. Letterbreen - - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 15, 1867.
	10. Lisbellaw - - -	—	—	—	—	—	- - -	13*	9	1	23	„ „
	11. Lisnaskea - - -	—	—	—	—	—	- - -	13*	8†	—	21	Aug. 23, 1866.
	12. Newtownbutler - -	—	—	—	—	—	- - -	13*	8†	1	22	Aug. 16, 1867.
	13. Rosslea - - -	—	—	—	—	—	- - -	13*	9†	1	23	„ „
	Total for the County of Fermanagh -	16	10	1	27	1	- - -	168	104	12	284	
Galway - - West Riding.	23 Petty Sessional Districts of the West Riding, including the Town of Galway, viz.:—											
	1. Ardrahan - - -	—	—	—	—	—	- - -	13	7	—‡	20	Mar. 1867.
	2. Arran - - - -	—	—	—	—	—	- - -	13	7	—	20	Oct. 10, 1867.
	3. Ballymoe - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 6, 1867.
	4. Carna - - - -	—	—	—	—	—	- - -	13	7	—	20	Apr. 11, 1867.
	5. Castletown - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	6. Clifden - - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 7, 1867.
	7. Clonbur - - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	8. Derreen - - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 1867.
	9. Dunmore - - - -	—	—	—	—	—	- - -	13	7	—	20	——
	10. Galway town - - -	16	10	—‡	26	1	Sept. 18, 1861§	—	—	—	—	——
	11. Galway, Petty Sessions Division.	—	—	—	—	—	- - -	16	10	—	26	Apr. 26, 1867.
	12. Gort - - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 7, 1867.
	13. Headford - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	14. Kinvara - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	15. Letterfrack - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 6, 1867.
	16. Maam - - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	17. Milltown - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	18. Oranmore - - -	—	—	—	—	—	- - -	13	7	—	20	July 1867.
	19. Oughterard - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 7, 1867.
	20. Roundstone - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	21. Spiddal - - -	—	—	—	—	—	- - -	13	7	—	20	Mar. 5, 1867.
	22. Tuam - - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	23. Williamstown - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	Total for the County of Galway, West Riding - - -	16	10	—	26	1	- - -	289	157	—	446	
Galway - - East Riding.	14 Petty Sessional Districts of the East Riding, viz.:—											
	1. Ahaseragh - - -	—	—	—	—	—	- - -	13	7	—‡	20	Oct. 22, 1866.
	2. Athenry - - -	—	—	—	—	—	- - -	13	7	—	20	Oct. 26, 1866.
	3. Ballinamore - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	4. Ballinasloe - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	5. Ballygar - - -	—	—	—	—	—	- - -	13	7	—	20	Oct. 22, 1866.
	6. Eyrecourts - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	7. Gerteen - - -	—	—	—	—	—	- - -	12	7	—	19	„ „
	8. Kilimore - - -	—	—	—	—	—	- - -	13	7	—	20	Nov. 1, 1866.
	9. Laurencetown - -	—	—	—	—	—	- - -	13	7	—	20	Oct. 22, 1866.
	10. Loughrea - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	11. Marblehill - - -	—	—	—	—	—	- - -	13	7	—	20	Nov. 1, 1866.
	12. Mountbellewbridge -	—	—	—	—	—	- - -	13	7	—	20	Oct. 22, 1866.
	13. Mountshannon - -	—	—	—	—	—	- - -	13	7	—	20	Nov. 1, 1866.
	14. Portumna - - -	—	—	—	—	—	- - -	13	7	—	20	„ „
	Total for the County of Galway, East Riding - -	—	—	—	—	—	- - -	181	98	—	279	

* Including a sub-standard of "3½ lbs. weight." No standard of 4 lbs.
† Including a sub-standard of "¼ gill."
‡ No standards or sub-standards of *Length* appear to be used in the county of Galway.
§ Locally compared by the inspector, Feb. 8, 1867.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
KERRY - -	23 Petty Sessional Districts of the County, viz.:—											
	1. Anniscaul - - -	—	—	—	—	—	- - -	15	7	1	23	June 6, 1867.
	2. Ballylongford - -	—	—	—	—	—	- - -	16	9	1	26	Oct. 7, 1867.
	3. Cahirciveen - - -	—	—	—	—	—	- - -	15	9	1	25	„ „
	4. Cahirdaniel - - -	—	—	—	—	—	- - -	16	7	1	24	Oct. 2, 1867.
	5. Castleisland - - -	—	—	—	—	—	- - -	16	9	1	26	June 6, 1867.
	6. Causeway - - -	—	—	—	—	—	- - -	16	9	1	26	„ „
	7. Coolmagort - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	8. Castlegregory - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	9. Dingle - - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	10. Gunsboro' - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	11. Kenmare - - - -	—	—	—	—	—	- - -	16	7	1	24	Oct. 2, 1867.
	12. Killarney - - -	—	—	—	—	—	- - -	15	7	1	23	„ „
	13. Killorglin - - -	—	—	—	—	—	- - -	15	8	1	24	Oct. 4, 1867.
	14. Kilpadder - - -	—	—	—	—	—	- - -	16	7	1	24	Oct. 2, 1867.
	15. Listowell - - -	—	—	—	—	—	- - -	16	9	1	26	„ „
	16. Miltown - - - -	—	—	—	—	—	- - -	16	7	—	23	Oct. 4, 1866.
	17. Portmagee - - -	—	—	—	—	—	- - -	16	7	1	24	Oct. 2, 1867.
	18. Sneen - - - -	—	—	—	—	—	- - -	16	7	1	24	June 6, 1867.
	19. Tarbert - - - -	—	—	—	—	—	- - -	16	9	1	26	Oct. 2, 1867.
	20. Tralee - - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	21. Valentia - - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	22. Waterville - - -	—	—	—	—	—	- - -	16	7	1	24	„ „
	23. (Not stated, the inspector being absent.)											
	Total for the County of Kerry - -	—	—	—	—	—	- - -	348	167	21	536	
KILDARE - -	14 Petty Sessional Districts of the County, viz.:—											
	1. Athy - - - -	—	—	—	—	—	- - -	13	7	1	21	April 16, 1867.
	2. Ballymac - - -	—	—	—	—	—	- - -	13	10	1	24	„ „
	3. Carbury - - -	—	—	—	—	—	- - -	16	10	1	27	„ „
	4. Castledermot - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	5. Celbridge - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	6. Clane - - - -	—	—	—	—	—	- - -	13	10	1	24	April 18, 1867.
	7. Donadea - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	8. Kilcullen - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	9. Kildare - - - -	—	—	—	—	—	- - -	13	7	1	21	April 13, 1867.
	10. Kilmeaghue - - -	—	—	—	—	—	- - -	13	7	1	21	April 22, 1867.
	11. Monasterevan - -	—	—	—	—	—	- - -	13	7	1	21	April 16, 1867.
	12. Naas - - - -	16	—	—	27	1	Feb. 25, 1867	13	7	1	21	April 18, 1867.
	Do. - - - -	—	10	1	—	—	Dec. 12, 1861	—	—	—	—	—
	13. Newbridge - - -	—	—	—	—	—	- - -	13	7	1	21	April 16, 1867.
	14. Rathangan - - -	—	—	—	—	—	- - -	13	7	1	21	April 13, 1867.
	Total for the County of Kildare - -	16	10	1	27	1	- - -	185	107	14	306	
KILKENNY - -	17 Petty Sessional Districts of the County, including the City of Kilkenny, viz.:—											
	1. Ballyragget - - -	—	—	—	—	—	- - -	13	7	1	21	June 1, 1866.
	2. Callan - - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	3. Castlecomer - - -	—	—	—	—	—	- - -	13	7	1	21	June 2, 1866.
	4. Dunmore - - -	16	7	1	24	1	- - -	13	7	1	21	„ „
	5. Freshford - - -	—	—	—	—	—	- - -	13	7	1	21	June 1, 1866.
	6. Gowran - - - -	—	—	—	—	—	Sept. 20, 1867	13	7	1	21	„ „
	7. Goresbridge - - -	—	—	—	—	—	- - -	13	7	3	23	„ „
	8. Graigue - - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	9. Johnstown - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	10. Kilkenny City - -	14	9	1	24	1	May 23, 1862	13	9	1	23	May 20, 1867.
	11. Kilmacow - - -	—	—	—	—	—	- - -	13	7	1	21	June 1, 1866.
	12. Kilmaganny - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	13. Kilmanagh - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	14. Pilltown - - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	15. Rosbercon - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	16. Stoneyford - - -	—	—	—	—	—	- - -	13	7	1	21	June 2, 1866.
	17. Thomastown - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	Total for the County of Kilkenny -	30	16	2	48	2	- - -	221	121	19	361	
KING'S COUNTY -	16 Petty Sessional Districts of the County, viz.:—											
	1. Ballycumber - -	—	—	—	—	—	- - -	13	11	1	25	April 11, 1867.
	2. Banagher - - -	—	—	—	—	—	- - -	13	4	1	18	April 12, 1867.
	3. Clara - - - -	—	—	—	—	—	- - -	13	11	1	25	„ „

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
King's County—*cont.*	4. Clonegowan	—	—	—	—	—	—	13	11	1	25	April 10, 1867.
	5. Edenderry	—	—	—	—	—	—	13	11	1	25	„ „
	6. Fahy	—	—	—	—	—	—	13	10	1	24	„ „
	7. Ferbane	—	—	—	—	—	—	13	11	1	25	April 11, 1867.
	8. Frankford	—	—	—	—	—	—	13	11	1	25	April 12, 1867.
	9. Kinnitty	—	—	—	—	—	—	13	10	1	24	April 11, 1867.
	10. Moneygall	—	—	—	—	—	—	13	11	1	25	April 10, 1867.
	11. Moystown	—	—	—	—	—	—	13	11	1	25	April 11, 1867.
	12. Parsonstown	—	—	—	—	—	—	13	10	1	24	April 12, 1867.
	13. Phillipstown	—	—	—	—	—	—	13	11	1	25	„ „
	14. Shinrone	—	—	—	—	—	—	13	11	1	25	April 10, 1867.
	15. Thomastown	—	—	—	—	—	—	13	11	1	25	April 11, 1867.
	16. Tullamore	16	10	1	27	1	May 14, 1862	13	11	1	25	April 12, 1867.
	Total for King's County	16	10	1	27	1	—	208	166	16	390	
Leitrim	13 Petty Sessional Districts of the County, viz.:—											
	1. Ballinamore	—	—	—	—	—	—	13	10	1	24	Aug. 24, 1867.
	2. Carrick-on-Shannon	16	10	1	27	1	April 16, 1862	13	10	1	24	„ „
	3. Carrigallen	—	—	—	—	—	—	13	10	1	24	„ „
	Cashcarugan. *See* Kishcariegan.											
	4. Cloone	—	—	—	—	—	—	13	10	1	24	„ „
	5. Dromahaire	—	—	—	—	—	—	13	10	1	24	„ „
	6. Dromod	—	—	—	—	—	—	13	10	1	24	„ „
	7. Drumkeeran	—	—	—	—	—	—	13	10	1	24	Aug. 14, 1866.
	8. Drumsna	—	—	—	—	—	—	13	10	1	24	Aug. 24, 1867.
	9. Drumahamlo	—	—	—	—	—	—	13	10	1	24	„ „
	10. Kinlough	—	—	—	—	—	—	13	10	1	24	Aug. 14, 1866.
	11. Kishcariegan	—	—	—	—	—	—	13	10	1	24	Aug. 24, 1867.
	12. Manahamilton	—	—	—	—	—	—	13	10	1	24	Aug. 14, 1866.
	13. Mohill	—	—	—	—	—	—	13	10	1	24	Aug. 24, 1867.
	Total for the County of Leitrim	16	10	1	27	1	—	169	130	13	312	
Limerick	23 Petty Sessional Districts of the County, including the City of Limerick, viz.:—											
	1. Abbeyfeal	—	—	—	—	—	—	14	7	—	21	Sept. 14, 1867.
	2. Adare	—	—	—	—	—	—	14	7	—	21	June 12, 1866.
	3. Askeaton	—	—	—	—	—	—	14	7	—	21	Sept. 11, 1867.
	4. Ballingarry	—	—	—	—	—	—	13	7	—	20	„ „
	5. Ballyneety	—	—	—	—	—	—	14	7	—	21	Sept. 10, 1867.
	6. Bruree	—	—	—	—	—	—	13	7	—	20	Sept. 12, 1867.
	7. Bruff	—	—	—	—	—	—	13	7	—	20	Sept. 11, 1867.
	8. Castleconnell	—	—	—	—	—	—	14	7	—	20	Sept. 10, 1867.
	9. Croom	—	—	—	—	—	—	13	7	—	21	Sept. 14, 1867.
	10. Foynes	—	—	—	—	—	—	13	7	—	20	Oct. 9, 1867.
	11. Galbally	—	—	—	—	—	—	13	7	—	20	Sept. 12, 1867.
	12. Glin	—	—	—	—	—	—	13	7	—	20	Oct. 15, 1867.
	13. Hospital	—	—	—	—	—	—	13	7	—	20	Sept. 12, 1867.
	14. Kilfinnan	—	—	—	—	—	—	14	7	—	21	„ „
	15. Kilmallock	—	—	—	—	—	—	14	7	—	21	Oct. 9, 1867.
	16. Limerick	16	—	—	23	1	Aug. 14, 1867	15	7	—	22	Oct. 8, 1867.
	Do. Petty Sessions	—	7	—			July 15, 1825	—	—	—	—	—
	17. Do. City	16	7	—	23	1	Nov. 13, 1861	14	7	—	21	„ „
	18. Murro	—	—	—	—	—	—	14	7	—	21	Sept. 10, 1867.
	19. Newcastle	—	—	—	—	—	—	14	7	—	21	Oct. 9, 1867.
	20. New Palace	—	—	—	—	—	—	13	7	—	20	Sept. 10, 1867.
	21. Pallaskenry	—	—	—	—	—	—	13	7	—	20	Sept. 14, 1867.
	22. Patrickswell	—	—	—	—	—	—	13	7	—	20	„ „
	23. Rathneale	—	—	—	—	—	—	13	7	—	20	Sept. 11, 1867.
	Total for the County of Limerick	32	14	—	46	2	—	311	161	—	472	
Londonderry	15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—											
	1. Bellaghy	—	—	—	—	—	—	13	10	1	24	Feb. 13, 1867.
	2. Clandy	—	—	—	—	—	—	13	10	1	24	Feb. 20, 1867.
	3. Coleraine	—	—	—	—	—	—	13	*11	1	25	Feb. 16, 1867.
	4. Drapertown	—	—	—	—	—	—	13	10	1	24	Feb. 14, 1867.
	5. Dungwen	—	—	—	—	—	—	13	10	1	24	Feb. 11, 1867.
	6. Eglington	—	—	—	—	—	—	13	10	1	24	Feb. 25, 1867.

* Including a sub-standard of "$\frac{1}{4}$ gill."

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Londonderry—*cont.*	7. Garvagh	—	—	—	—	—	—	13	10	1	24	Feb. 25, 1866.
	8. Innisrush	—	—	—	—	—	—	13	10	1	24	Feb. 22, 1866.
	9. Kilrea	—	—	—	—	—	—	13	10	1	24	Feb. 16, 1867.
	10. Londonderry City	16	10	1	27	1	June 3, 1862	13	10	1	24	Aug. 1, 1867.
	11. Do. P. S. Div.	—	—	—	—	—	—	13	10	1	24	Feb. 20, 1867.
	12. Maghera	—	—	—	—	—	—	13	10	1	24	Feb. 22, 1866.
	13. Magherafelt	—	—	—	—	—	—	13	10	1	24	Feb. 13, 1867.
	14. Moneymore	—	—	—	—	—	—	13	10	1	24	„ „
	15. Newtownlimavady	16	— 10	— 1	27	1	June 17, 1867 May 26, 1862	13 —	10 —	1 —	24 14	Feb. 9, 1867. —
	Total for the County of Londonderry	32	20	2	54	2	—	195	151	15	361	
Longford	11 Petty Sessional Districts of the County, viz.:—											
	1. Ballinalee	—	—	—	—	—	—	13	11	—	24	July 31, 1866.
	2. Ballinamuck	—	—	—	—	—	—	13	8	1	22	„ „
	3. Ballymahon	—	—	—	—	—	—	14	8	1	23	July 31, 1867.
	4. Carrickboy	—	—	—	—	—	—	13	10	1	24	July 31, 1866.
	5. Drumlish	—	—	—	—	—	—	12	8	1	21	„ „
	6. Edgeworthstown	—	—	—	—	—	—	13	4	1	18	„ „
	7. Granard	—	—	—	—	—	—	13	8	1	22	„ „
	8. Kenagh	—	—	—	—	—	—	13	11	1	25	„ „
	9. Lanesboro'	—	—	—	—	—	—	13	8	1	22	„ „
	10. Longford Town	16	—	—	16	1	Nov. 2, 1861	14	11	1	26	„ „
	11. Newtownforbes	—	—	—	—	—	—	13	4	1	18	„ „
	Total for the County of Longford	16	—	—	16	1	—	144	91	10	245	
Louth	10 Petty Sessional Districts of the County, viz.:—											
	1. Ardee	—	—	—	—	—	—	16	10	1	27	Feb. 28, 1867.
	2. Carlingford	—	—	—	—	—	—	15	10	1	26	„ „
	3. Castlebellingham	—	—	—	—	—	—	15	10	—	25	Mar. 1, 1867.
	4. Collon	—	—	—	—	—	—	— —	— 10	— 1	— 25	Dec. 11, 1865. Feb. 28, 1867.
	5. Dundalk	15	10	1	26	1	Oct. 1863	15	10	1	26	„ „
	6. Dunleer	—	—	—	—	—	—	16	10	1	27	Mar. 1, 1867.
	7. Louth	—	—	—	—	—	—	15	10	—	26	Feb. 28, 1867.
	8. Mell	—	—	—	—	—	—	15	10	1	25	Mar. 1, 1867.
	9. Ravensdale	—	—	—	—	—	—	15	10	1	26	Feb. 28, 1867.
	10. Termonfeckin	—	—	—	—	—	—	15	10	1	26	Mar. 1, 1867.
	Total for the County of Louth	15	10	1	26	1	—	151	100	8	259	
Mayo	24 Petty Sessional Districts of the County, viz.:—											
	1. Achill	—	—	—	—	—	—	13	7	—	20	July 25, 1867.
	2. Balla	—	—	—	—	—	—	13	7	1	21	„ „
	3. Ballaghadereen	—	—	—	—	—	—	13	6	1	20	July 10, 1866.
	4. Ballina	—	—	—	—	—	—	13	7	1	21	July 25, 1867.
	5. Ballindine	—	—	—	—	—	—	13	7	1	21	July 24, 1867.
	6. Ballinrobe	—	—	—	—	—	—	13	7	—	20	„ „
	7. Ballycastle	—	—	—	—	—	—	13	7	1	21	July 25, 1867.
	8. Ballycroy	—	—	—	—	—	—	13	7	1	21	„ „
	9. Ballyclass	—	—	—	—	—	—	13	7	1	21	July 24, 1867.
	10. Ballyhannis	—	—	—	—	—	—	13	7	1	21	July 10, 1866.
	11. Belmullet	—	—	—	—	—	—	13	7	1	21	July 25, 1867.
	12. Castlebar	16	10	1	27	1	Mar. 15, 1862	13	7	1	21	„ „
	13. Claremorris	—	—	—	—	—	—	13	7	1	21	July 24, 1867.
	14. Cong	—	—	—	—	—	—	13	7	1	21	„ „
	15. Crossmolina	—	—	—	—	—	—	13	7	1	21	July 9, 1867.
	16. Foxford	—	—	—	—	—	—	13	7	1	21	July 24, 1867.
	17. Hollymount	—	—	—	—	—	—	13	7	1	21	July 9, 1866.
	18. Killihane	—	—	—	—	—	—	13	7	1	21	July 25, 1867.
	19. Killala	—	—	—	—	—	—	13	7	1	21	„ „
	20. Kilmaine	—	—	—	—	—	—	13	7	1	21	July 24, 1867.
	21. Louisburgh	—	—	—	—	—	—	13	7	1	21	July 26, 1867.
	22. Lowpark	—	—	—	—	—	—	13	7	1	21	July 9, 1866.
	23. Swinford	—	—	—	—	—	—	13	7	1	21	„ „
	24. Westport	—	—	—	—	—	—	12	7	1	20	July 25, 1867.
	Total for the County of Mayo	16	10	1	27	1	—	311	167	22	500	
Meath, West.	*See* Westmeath.	—	—	—	—	—	—	—	—	—	—	—

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Meath	18 Petty Sessional Districts of the County, including the Town and County of Drogheda, viz.:—											
	1. Athboy	—	—	—	—	—	—	13	10	1	24	Dec. 18, 1867.
	2. Ballyvor	—	—	—	—	—	—	13	10	1	24	Sept. 12, 1866.
	3. Cross-a-kiel	—	—	—	—	—	—	13	10	1	24	Sept. 18, 1867.
	4. Drogheda Towns	16	10	1	27	1	June 26, 1863	16	10	1	27	July 7, 1866.
	5. Drumconrath	—	—	—	—	—	—	13	10	1	24	Sept. 18, 1866.
	6. Duleek	—	—	—	—	—	—	13	10	1	24	Sept. 12, 1866.
	7. Dunboyne	—	—	—	—	—	—	13	10	1	24	" "
	8. Dunshaughlin	—	—	—	—	—	—	13	10	1	24	" "
	9. George's Cross	—	—	—	—	—	—	13	10	1	24	Aug. 16, 1866.
	10. Julianstown	—	—	—	—	—	—	13	10	1	24	Sept. 12, 1866.
	11. Kells	—	—	—	—	—	—	13	10	1	24	Sept. 11, 1866.
	12. Longwood	—	—	—	—	—	—	13	10	1	24	Sept. 21, 1865.
	13. Moynalty	—	—	—	—	—	—	16	10	1	27	Sept. 11, 1866.
	14. Navan	—	—	—	—	—	—	14	10	1	25	" "
	15. Oldcastle	—	—	—	—	—	—	13	9	1	23	Sept. 12, 1866.
	16. Slayne	—	—	—	—	—	—	13	10	1	24	Aug. 16, 1866.
	17. Summerhill	—	—	—	—	—	—	13	10	1	24	Sept. 11, 1866.
	18. Trim	—	—	—	—	—	—	13	10	1	24	" "
	Total for the County of Meath	16	10	1	27	1	—	241	179	18	438	
Monaghan	8 Petty Sessional Districts of the County, viz.:—											
	1. Ballybay	—	—	—	—	—	—	13*	—	—	13	Dec. 19, 1866.
	2. Carrickmacross	—	—	—	—	—	—	12*	13	1	26	Dec. 18, 1866.
	3. Castleblayney	—	—	—	—	—	—	13*	13	1	27	Sept. 19, 1866.
	4. Clones	—	—	—	—	—	—	12*	13	1	26	Dec. 19, 1866.
	5. Emyvale	—	—	—	—	—	—	13*	10	1	24	Dec. 18, 1866.
	6. Monaghan	16	10	1	27	1	June 19, 1866 Dec. 8, 1866	13*	9	1	23	" "
	7. Newbliss	—	—	—	—	—	—	13*	13	1	27	Dec. 19, 1866.
	8. Rockcorry	—	—	—	—	—	—	13*	13	1	27	Mar. 27, 1867.
	Total for the County of Monaghan	16	10	1	27	1	—	102	84	7	198	
Queen's County	16 Petty Sessional Districts of the County, viz.:—											
	1. Abbeyleix	—	—	—	—	—	—	13	7	1	21	July 8, 1867.
	2. Ballacolla	—	—	—	—	—	—	13	7	1	21	" "
	3. Ballybrittas	—	—	—	—	—	—	13	7	1	21	" "
	4. Ballylinan	—	—	—	—	—	—	13	7	1	21	" "
	5. Borris-in-Ossory	—	—	—	—	—	—	13	6	1	20	" "
	6. Castletowne and Coolrain	—	—	—	—	—	—	13	7	1	21	" "
	7. Carlow Graigne	—	—	—	—	—	—	13	10	1	24	" "
	8. Clonaslie	—	—	—	—	—	—	13	7	1	21	" "
	9. Durrow	—	—	—	—	—	—	13	7	1	21	" "
	10. Maryborough	16	10	1	27	1	April 10, 1866 June 2, 1862	13	10	1	24	" "
	11. Mountmellick	—	—	—	—	—	—	13	10	1	24	" "
	12. Mountrath	—	—	—	—	—	—	13	10	1	24	" "
	13. Portarlington	—	—	—	—	—	—	13	10	1	24	" "
	14. Rathdowney	—	—	—	—	—	—	13	7	1	21	" "
	15. Stradbelly	—	—	—	—	—	—	13	7	1	21	" "
	16. Timahoe	—	—	—	—	—	—	13	7	1	21	" "
	Total for the Queen's County	16	10	1	27	1	—	208	126	16	350	
Roscommon	22 Petty Sessional Districts of the County, viz.:—											
	1. Athlone	—	—	—	—	—	—	13	7	1	21	Sept. 18, 1866.
	2. Ballinasloe	—	—	—	—	—	—	13	10	1	24	Oct. 22, 1865.
	3. Ballintobber	—	—	—	—	—	—	13	7	1	21	Sept. 18, 1866.
	4. Ballinlough	—	—	—	—	—	—	13	7	1	21	" "
	5. Ballyfarnon	—	—	—	—	—	—	13	7	1	21	Sept. 19, 1866.
	6. Ballyforan	—	—	—	—	—	—	13	7	—	20	Oct. 22, 1865.
	7. Belanagare	—	—	—	—	—	—	13	7	1	21	Sept. 22, 1866.
	8. Boyle	—	—	—	—	—	—	13	7	1	21	Sept. 19, 1866.
	9. Brideswell	—	—	—	—	—	—	13	7	1	21	Oct. 27, 1865.
	10. Castlerea	—	—	—	—	—	—	14	7	1	22	Sept. 18, 1866.
	11. Coolderry	—	—	—	—	—	—	13	7	1	21	Sept. 20, 1866.
	12. Cootehall	—	—	—	—	—	—	13	7	1	21	Sept. 19, 1866.

* Including a Sub-standard of 3½ lbs., and excluding a Sub-standard of 4 lbs.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Roscommon—*cont.*	13. Croghan	—	—	—	—	—	—	13	7	1	21	Sept. 22, 1866.
	14. Elphin	—	—	—	—	—	—	14	7	1	22	Sept. 18, 1866.
	15. Frenchpark	—	—	—	—	—	—	13	7	1	21	Sept. 22, 1866.
	16. Keadue	—	—	—	—	—	—	13	7	1	21	Sept. 19, 1866.
	17. Kilmore	—	—	—	—	—	—	13	7	1	21	Sept. 18, 1866.
	18. Lecarrow	—	—	—	—	—	—	13	7	1	21	Sept. 20, 1866.
	19. Roscommon	16	10	1	24	1	Mar. 1, 1864	13	7	1	21	„ „
	20. Reeskey	—	—	—	—	—	—	13	7	1	21	Sept. 19, 1866.
	21. Strokestown	—	—	—	—	—	—	13	7	1	21	„ „
	22. Tulsk	—	—	—	—	—	—	13	7	1	21	Sept. 18, 1866.
	Total for the County of Roscommon	16	17	1	27	1	—	288	157	21	466	
Sligo	14 Petty Sessional Districts of the County, viz.:—											
	1. Ardnaree	—	—	—	—	—	—	13	7	1	21	Mar. 19, 1867.
	2. Ballinafad	—	—	—	—	—	—	13	7	1	21	Mar. 14, 1867.
	3. Bailymote	—	—	—	—	—	—	13	7	1	21	„ „
	4. Collooney	—	—	—	—	—	—	13	7	1	21	Mar. 13, 1867.
	5. Coolaney	—	—	—	—	—	—	13	10	1	24	Mar. 18, 1867.
	6. Dromore	—	—	—	—	—	—	26	14	2	42	Mar. 19, 1867.
	7. Enniscrone	—	—	—	—	—	—	13	10	1	24	„ „
	8. Grange	—	—	—	—	—	—	13	7	1	21	„ „
	9. Mullaghroe	—	—	—	—	—	—	13	7	1	21	Mar. 23, 1867.
	10. Riverstown	—	—	—	—	—	—	13	7	1	21	Mar. 14, 1867.
	11. Skreen	—	—	—	—	—	—	13	10	1	24	Mar. 17, 1867.
	12. Sligo	32	18	2	52	2	Feb. 1862	32	18	2	52	„ „
	13. Sooey	—	—	—	—	—	—	13	7	1	21	Mar. 13, 1867.
	14. Tobercurry	—	—	—	—	—	—	13	7	1	21	Mar. 14, 1867.
	Total for the County of Sligo	32	18	2	52	2	—	214	125	16	355	
Tipperary North Riding.	9 Petty Sessional Districts of the North Riding, viz.:—											
	1. Borrisokane	—	—	—	—	—	—	13	10	1	24	May 29, 1867.
	2. Borrisoleigh	—	—	—	—	—	—	13	9	1	23	„ „
	3. Cloughjordan	—	—	—	—	—	—	16	10	1	27	„ „
	4. Lorrha	—	—	—	—	—	—	16	11	—	27	June 10, 1867.
	5. Nenagh	16	7	1	24	1	Apr. 19, 1866	16	7	1	24	May 29, 1867.
	6. Newport	—	—	—	—	—	—	13	7	1	21	„ „
	7. Roscrea	—	—	—	—	—	—	14	10	1	25	„ „
	8. Templemore	—	—	—	—	—	—	13	10	1	24	„ „
	9. Thurles	—	—	—	—	—	—	13	7	1	21	„ „
	Total for the North Riding, Tipperary	16	7	1	24	1	—	127	81	8	216	
Tipperary South Riding.	16. Petty Sessional Districts of the South Riding, viz.:—											
	1. Ardfinan	—	—	—	—	—	—	16	11	1	28	Feb. 14, 1867.
	2. Ballymonty	—	—	—	—	—	—	13	10	1	24	Feb. 25, 1867.
	3. Ballyporeen	—	—	—	—	—	—	16	10	1	27	Feb. 13, 1867.
	4. Bansha	—	—	—	—	—	—	13	10	1	24	Feb. 14, 1867.
	5. Cahir	—	—	—	—	—	—	13	10	1	24	„ „
	6. Cappawhite	—	—	—	—	—	—	16	11	1	28	Feb. 18, 1867.
	7. Carrick-on-Suir	—	—	—	—	—	—	15	10	1	26	Feb. 16, 1867.
	8. Cashel	—	—	—	—	—	—	13	10	1	24	Feb. 13, 1867.
	9. Clogheen	—	—	—	—	—	—	13	10	1	24	„ „
	10. Clonmel	—	—	—	—	—	—	13	10	1	24	„ „
	11. Dundrum	—	—	—	—	—	—	13	10	1	24	„ „
	12. Fethard	—	—	—	—	—	—	16	11	1	28	Feb. 20, 1867.
	13. Golden	—	—	—	—	—	—	13	10	1	24	Feb. 14, 1867.
	14. Mullinahone	—	—	—	—	—	—	13	10	1	24	Feb. 18, 1867.
	15. New Inn	—	—	—	—	—	—	16	11	—	27	Feb. 14, 1867.
	16. Tipperary	—	—	—	—	—	—	13	10	1	24	Feb. 18, 1867.
	Total for the South Riding, Tipperary	—	—	—	—	—	—	225	164	15	404	
Tyrone	20 Petty Sessional Districts of the County, viz.:—											
	1. Aughnacloy	—	—	—	—	—	—	13	9	1	23	Feb. 12, 1867.
	2. Ballygawley	—	—	—	—	—	—	13	10	1	24	„ „
	3. Caledon	—	—	—	—	—	—	13	9	1	23	„ „
	4. Carrickmore	—	—	—	—	—	—	13*	10	1	24	„ „
	5. Castlederg	—	—	—	—	—	—	13*	9	1	23	„ „
	6. Cloghor	—	—	—	—	—	—	13*	9	1	23	„ „
	7. Coagh	—	—	—	—	—	—	13	9	1	23	Feb. 15, 1867.

* Including the 4 lbs. weight not used or re-verified since 1862.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.							Sub-Standards used by Inspectors.				
		Number of Standard Weights.		Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
		Avoirdupois.	Troy.	Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
TYRONE—*cont.*	8. Cookstown	—	—	—	—	—	—	—	13*	9	1	23	Feb. 13, 1867.
	9. Dunamanagh	—	—	—	—	—	—	—	13	9	1	23	„ „
	10. Dungarmon	—	—	—	—	—	—	—	13*	9	1	23	„ „
	11. Fintona	—	—	—	—	—	—	—	13*	9	1	23	„ „
	12. Fivemilltown	—	—	—	—	—	—	—	13*	9	1	23	„ „
	13. Gortin	—	—	—	—	—	—	—	13	9	1	23	Feb. 14, 1867.
	14. Newton Stewart	—	—	—	—	—	—	—	13	8	1	22	Feb. 13, 1867.
	15. Moy	—	—	—	—	—	—	—	12	9	1	22	Feb. 15, 1867.
	16. Omagh	15	—	10	1	26	1	Jan. 30, 1864	13	9	1	23	Feb. 12, 1867.
	17. Pomerory	—	—	—	—	—	—	—	13*	9	1	23	Feb. 15, 1867.
	18. Stewarts town	—	—	—	—	—	—	—	13*	9	1	23	„ „
	19. Strabane	—	—	—	—	—	—	—	13*	9	1	23	Feb. 13, 1867.
	20. Trillick	—	—	—	—	—	—	—	13*	9	1	23	„ „
	Total for the County of Tyrone	15	—	10	1	26	1	—	259	181	20	460	
WATERFORD	15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz.:—												
	1. Ballymacarberry	—	—	—	—	—	—	—	13	8†	1	22	Mar. 11, 1865.
	2. Callahane	—	—	—	—	—	—	—	13	8†	1	22	Dec. 12, 1864.‡
	3. Cappoquin	—	—	—	—	—	—	—	13	7	1	21	Sept. 6, 1864.‡
	4. Carrickbeg	—	—	—	—	—	—	—	13	8†	—	21	Not stated.
	5. Clashmore	—	—	—	—	—	—	—	14	8†	1	23	Dec. 7, 1864.‡
	Do.	—	—	—	—	—	—	—	12	8†	1	21	Dec. 8, 1864.
	6. Dungawan	—	—	—	—	—	—	—	13	7	—	20	„ „
	7. Kilmacthomas	—	—	—	—	—	—	—	13	8†	—	21	Dec. 10, 1864.‡
	8. Lismore	—	—	—	—	—	—	—	13	7	1	21	Dec. 4, 1864.‡
	9. Portlaw	—	—	—	—	—	—	—	13	8	—	21	Dec. 10, 1864.‡
	10. Stradbally	—	—	—	—	—	—	—	13	7	—	20	„ „
	11. Tallow	—	—	—	—	—	—	—	13	7	1	21	Dec. 6, 1864.
	12. Tramore	—	—	—	—	—	—	—	13	8†	—	21	Dec. 10, 1864.
	13. Villier's Town	—	—	—	—	—	—	—	13	8†	1	22	Dec. 7, 1864.
	14. Waterford, St. Patrick's Hall.	—	—	—	—	—	—	—	14	7	1	22	April 3, 1867.
	15. Waterford, Boro.	—	—	—	—	—	—	—	16	11†	1	28	Feb. 13, 1867.
	Total for the County of Waterford	—	—	—	—	—	—	—	212	125	10	347	
WESTMEATH	16 Petty Sessional Districts of the County, viz.:—												
	1. Ballynacargy	—	—	—	—	—	—	—	13	7	2	22	Aug. 3, 1867
	2. Ballymore	—	—	—	—	—	—	—	13	7	1	21	May 14, 1866.
	3. Brawney	—	—	—	—	—	—	—	13	7	1	21	May 16, 1866.
	4. Castlepollard	—	—	—	—	—	—	—	13	7	1	20	Aug. 3, 1867.
	5. Clonmellon	—	—	—	—	—	—	—	13	7	1	21	Aug. 22, 1867.
	6. Collinstown	—	—	—	—	—	—	—	13	7	1	21	May 16, 1866.
	7. Delvin	—	—	—	—	—	—	—	13	7	1	21	May 14, 1866.
	8. Glasson	—	—	—	—	—	—	—	13	7	1	21	May 16, 1866.
	9. Kilbeggan	—	—	—	—	—	—	—	13	7	1	21	Aug. 16, 1867.
	10. Killucan	—	—	—	—	—	—	—	13	7	1	21	May 14, 1866.
	11. Knockdrin	—	—	—	—	—	—	—	13	7	1	21	Aug. 3, 1867.
	12. Moate	—	—	—	—	—	—	—	13	7	1	21	May 14, 1866.
	13. Mullingar	16	15	10	1	42	1	Nov. 2, 1861	13	7	1	21	Aug. 7, 1867.
	14. Multifarnham	—	—	—	—	—	—	—	13	7	1	21	Aug. 3, 1867.
	15. Rathowen	—	—	—	—	—	—	—	13	7	1	21	Aug. 7, 1867.
	16. Rochfortbridge	—	—	—	—	—	—	—	13	7	1	21	„ „
	Total for the County of Westmeath	16	5	10	1	42	1	—	208	111	17	336	
WEXFORD	12 Petty Sessional Districts of the County, viz.:—												
	1. Arthurstown	—	—	—	—	—	—	—	13	6§	1	20	Mar. 26, 1867.
	2. Clonroche	—	—	—	—	—	—	—	13	6	1	20	June 25, 1866.
	3. Duncormick	—	—	—	—	—	—	—	13	6	1	20	Mar. 25, 1867.
	4. Enniscorthy	12	—	6	1	19	1	June 25, 1866	12	6	1	19	June 25, 1866.
	5. Ferns	—	—	—	—	—	—	—	13	6	1	20	Mar. 25, 1867.
	6. Gorey	—	—	—	—	—	—	—	13	7	1	21	June 20, 1866.
	7. Killinick	—	—	—	—	—	—	—	13	7	—	20	Mar. 22, 1866.
	8. New Ross	—	—	—	—	—	—	—	13	6	—	19	June 26, 1866.
	9. Newtonbarry	—	—	—	—	—	—	—	13	7	1	21	Mar. 20, 1867.
	10. Oulart	—	—	—	—	—	—	—	13	6	1	20	„ „
	11. Taghmon	—	—	—	—	—	—	—	13	6	1	20	„ „
	12. Wexford	—	—	—	—	—	—	—	26	18	1	45	„ „
	Total for the County of Wexford	12	—	6	1	19	1	—	168	87	10	265	

* Including the 4 lbs. weight not used or verified since 1862.
† Including ½ gill.
‡ Delay in re-verification stated to be owing to continued delay by the makers in adjusting the large balances.
§ Excluding bushel, half bushel, and peck, not used.

Appendix IV.—*cont.*—Abstract A. of Returns from the Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
		Number of Standard Weights, Avoirdupois.	Number of Standard Measures.		Total.		When last officially verified.	Number of Weights, Avoirdupois.	Number of Measures.		Total.	When last locally verified.
			Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.			Capacity.	Length.		
Wicklow - -	13 Petty Sessional Districts of the County, viz.:—											
	1. Arklow - - -	—	—	—	—	—	- - -	15	7	1	23	May 23, 1867.
	2. Baltinglass - - -	—	—	—	—	—	- - -	15	10	1	26	„ „
	3. Blessington - - -	—	—	—	—	—	- - -	14	10	1	25	„ „
	4. Bray - - - -	—	—	—	—	—	- - -	13	7	1	21	„ „
	5. Carnew - - -	—	—	—	—	—	- - -	13	7	1	21	May 5, 1866.
	6. Coolkenno - - -	—	—	—	—	—	- - -	13	7	1	21	May 3, 1866.
	7. Dunlavin - - -	—	—	—	—	—	- - -	14	7	1	22	May 24, 1867.
	8. Enniskerry - - -	—	—	—	—	—	- - -	13	7	1	21	May 5, 1866.
	9. Newtown, Mount Kennedy.	—	—	—	—	—	- - -	13	7	1	21	May 14, 1866.
	10. Redcross - - -	—	—	—	—	—	- - -	13	7	1	21	May 23, 1867.
	11. Rathdrum - - -	—	—	—	—	—	- - -	15	7	1	23	„ „
	12. Wicklow - - -	16	10	1	27	1	Dec. 12, 1861	13	10	1	24	May 23, 1867.
	13. Tinahely - - -	—	—	—	—	—	- - -	14	8	1	23	May, 3, 1866.
	Total for the County of Wicklow - -	16	10	1	27	1	- - -	178	101	13	292	

SUMMARY OF ABSTRACT.

County.	Standards used by Inspectors.						Sub-Standards used by Inspectors.				
	Number of Standard Weights.		Number of Standard Measures.		Total.		Number of Weights, Avoirdupois.	Number of Measures.		Total.	Number of Sets of Sub-Standards.
	Avoirdupois.	Troy.	Capacity.	Length.	Number of Standards.	Number of Sets and Indentures.		Capacity.	Length.		
Antrim - - - -	16	—	10	1	27	1	340	264	23	627	26
Armagh - - - -	32	—	20	2	54	2	222	148	16	386	16
Carlow - - - -	16	—	10	1	27	1	91	70	7	168	7
Cavan - - - -	29	—	17	2	48	2	233	152	18	403	18
Clare - - - -	16	—	10	1	27	1	319	158	19	496	20
Cork, W.R. - - -	—	—	—	—	—	—	286	156	—	442	22
Cork, E.R. - - -	29	—	14	1	44	2	455	239	—	694	33
Donegal - - - -	17	—	10	1	28	1	377	215	26	618	26
Down - - - -	—	—	—	—	—	—	416	274	26	716	26
Dublin, including City of Dublin -	16	—	10	1	27	1	194	91	11	296	13
Fermanagh - - -	16	—	10	1	27	1	168	104	12	284	13
Galway, W.R. - - -	16	—	10	—	26	1	289	157	—	446	23
Galway, E.R. - - -	—	—	—	—	—	—	181	98	—	279	14
Kerry - - - -	—	—	—	—	—	—	348	167	21	536	23
Kildare - - - -	16	—	10	1	27	1	185	107	14	306	14
Kilkenny - - - -	30	—	16	2	48	2	221	121	19	361	17
King's Co. - - - -	16	—	10	1	27	1	208	166	16	390	16
Leitrim - - - -	16	—	10	1	27	1	169	130	13	312	13
Limerick - - - -	32	—	14	—	46	2	311	161	—	472	21
Londonderry - - -	32	—	20	2	54	2	195	151	15	361	15
Longford - - - -	16	—	—	—	16	1	144	91	10	245	11
Louth - - - -	15	—	10	1	26	1	151	100	8	259	9
Mayo - - - -	16	—	10	1	27	1	311	167	22	500	24
Meath - - - -	16	—	10	1	27	1	241	179	18	438	18
Monaghan - - - -	16	—	10	1	27	1	102	84	7	193	8
Queen's Co. - - -	16	—	10	1	27	1	208	126	16	350	16
Roscommon - - -	16	—	10	1	27	1	288	157	21	466	22
Sligo - - - -	32	—	18	2	52	2	214	125	16	355	14
Tipperary, N.R. - - -	16	—	7	1	24	1	127	81	8	216	9
Tipperary, S.R. - - -	—	—	—	—	—	—	225	164	15	404	16
Tyrone - - - -	15	—	10	1	26	1	259	181	20	460	20
Waterford - - - -	—	—	—	—	—	—	212	125	10	347	15
Westmeath - - -	16	15	10	1	42	1	208	111	17	336	16
Wexford - - - -	12	—	6	1	19	1	168	87	10	265	12
Wicklow - - - -	16	—	10	1	27	1	178	101	13	292	13
Total Number of Standards and Sub-Standards used in Ireland	563	15	322	31	931	36	8,244	5,008	467	13,719	599

Appendix IV.—*continued.*

NOTES BY THE WARDEN OF THE STANDARD.

Antrim.—The returns state only one set of *Local Standards in use* in the county, being for the county and town of Carrickfergus; that the date of their last verification at the Standards Department cannot be stated; and that they were last locally re-verified by the inspectors in "July or August 1863."—It appears from the books of the Standards Department, that nine full sets of standards have been verified for this county, viz.:—

Six sets for county of Antrim, last verification on August 14, 1867.

Two sets for city of Belfast, last verification on November 22, 1848.

One set for county and town of Carrickfergus, originally verified on July 15, 1835, and not since officially re-verified.

Armagh.—Two sets of local standards stated to be in use, the date of last official verification not stated.—By the books of the Department one set was originally verified on May 13, 1835, and has not been since officially re-verified; the other set was originally verified on March 20, 1854, and was re-verified on April 10, 1863.

Carlow.—One set of local standards stated to be in use, last officially verified on January 16, 1862.—Agrees with the books of the Department.

Cavan.—Two sets of local standards stated to be in use, one set last officially verified in April 1863, the date of the official verification of the other set not stated.—One set only has been verified at the Standards Department for this county, originally on November 14, 1827, and last re-verified on April 10, 1863.

Clare.—One set of local standards stated to be in use at Ennis; date of official verification not known, but "locally "re-verified with the imperial standards from Tralee, *county* "*Kerry*, on April 26, 1867."—The books of the Standards Department show two sets of standards to have been verified for the county of Clare; one for the county, on October 25, 1856, and one for the borough of Ennis, in 1827.

Cork.—Two sets of local standards stated to be in use; one for the city of Cork, last officially verified September 5, 1867, and one at Passage West, on September 5, 1861.—From the books of the Standards Department, more than five sets appear to have been verified for this county, or places in it; viz., two full sets for the county, of which one set was last verified on September 5, 1861, the other on December 1, 1853; two complete sets, including troy weights, for the city of Cork, both originally verified in 1835, of which one set has not since been officially re-verified, and the other (excepting the troy weights), was last re-verified on September 5, 1867; one full set for Kinsale in 1826, one set of measures only for Youghail in 1826, neither of which has since been officially re-verified.

Donegal.—One set of local standards stated to be in use, including two 14 lb. weights, officially verified June 3, 1862, and locally re-verified July 27, 1867.—By the books of the Department one full set was originally verified in 1835, and was re-verified in 1862. An additional set of avoirdupois weights was originally verified in 1849, and has not since been officially re-verified.

Down.—No local standards stated to be in use.—The books of the Department show that one set was originally verified in 1826; three more sets were verified in 1835, of these, one set was last officially re-verified on May 11, 1867, for the sub-inspector of police.

Dublin, County.—One set of local standards stated to be in use, and last officially verified April 16, 1862.—By the books of the Department one set was originally verified in 1826, and was last officially re-verified for the Head Constable on April 16, 1862; three more sets were originally verified in 1848, and have not since been re-verified.

Dublin City.—No local standards stated to be in use.—By the books of the Department a complete set, including troy weights, was verified for the city of Dublin, on Feb. 13, 1826, to be delivered to the Lord Mayor. Another full set, without troy weights, was verified for the liberty of Saint Sepulchre, on January 21, 1828, to be delivered to the custody of the Archbishop of Dublin. Neither of these sets has been since officially re-verified.—In 1856, a set of bullion standards was also verified for the city of Dublin, and sent to the chief magistrate in pursuance of s. 2 of the Act 16 Vict. c. 29.

Fermanagh.—One set only of local standards, stated to be in use, officially verified June 27, 1863.—By the books of the Department one set was verified for the county in 1863, for the sub-inspector of constabulary, and one set for the borough of Enniskillen on August 9, 1861, for the town council.

Galway.—One set only of local standards stated to be in use, at Galway town, and last officially verified on September 18, 1861.—By the books of the Department two sets were verified for the county in 1863, for the sub-inspector of constabulary, and in 1861 one set was verified for Galway town, for the chairman of the town council.

Kerry.—No local standards stated to be in use.—By the books of the Standards Department two full sets were originally verified for the county in 1835, and six more sets in 1842; one set of weights was last officially re-verified on June 2, 1863; and one set of measures on September 18, 1861; to be delivered to the sub-inspector of constabulary.

Kildare.—One set of local standards stated to be in use, the weights officially verified February 25, 1867, the measures, December 12, 1861.—Agrees with the books of the Standards Department.

Kilkenny.—Two sets of local standards stated to be in use; one for the county, the weights last officially verified September 20, 1867, and one for city of Kilkenny, on May 23, 1862; the date of the verification of measures not stated.—By the books of the Department the county measures were last officially re-verified on May 15, 1861; the other dates agree.

King's County.—One set of local standards stated to be in use, and officially verified on May 14, 1862.—By the books of the Department two sets were originally verified in 1835, one of which was officially re-verified in 1862.

Leitrim.—One set of local standards stated to be in use, and officially verified on April 16, 1862.—By the books of the Department two sets were originally verified in 1827 and 1828, the first of which was officially re-verified in 1862.

Limerick.—One set of county standards, and one set for city of Limerick, stated to be in use, and both sets officially re-verified on August 14, 1867, the measures consisting of seven of capacity, from the gallon downwards, *but no yard.*—By the books of the Department one full set of avoirdupois weights and of measures, from the bushel downwards, including the yard, was originally verified *for the County* in 1835; in 1856, a second full set of avoirdupois weights was verified, which was officially re-verified in 1867. The set originally verified in 1835, *including the measures, has never been officially* re-verified. *For the City* of Limerick one full set of weights and measures, including the yard, was originally verified in 1826, and a set of avoirdupois weights in 1845. On November 30, 1861, one full set, including ten measures of capacity, but not the yard, was officially re-verified.

Londonderry.—Two full sets stated to be in use, one at Newtownlimavady, the weights officially re-verified June 17, 1867, and the measures May 26, 1862, and one set at the city of Londonderry, officially re-verified June 3, 1862.—By the books of the Department one full set was originally verified for the city of Londonderry in 1827, and a short set of weights from 1 lb. downwards in 1835, the full set being re-verified in 1862; a full set for the city and county of Londonderry was originally verified on May 21, 1862, the weights being re-verified in 1867.

Longford.—One set of avoirdupois weights only stated to be in use in the town of Longford, and last officially verified on November 2, 1861.—By the books of the Department one full set of weights and measures was originally verified for the county in 1835, and was re-verified on November 2, 1861; one full set of weights and measures was also originally verified for the borough of Longford in 1835, and has never been re-verified.

Louth.—One set in use, re-verified in 1863.—Agrees with the books of the Department.

Appendix IV.—*continued.*

Mayo.—One set stated to be in use and officially verified in March 1862.—By the books of the Department two full sets were originally verified for the county in 1835, and one set was re-verified on March 15, 1862.

Meath.—One set only stated to be in use in the county of the town of Drogheda; when last officially verified not stated.—By the books of the Department one full set was originally verified for the county of Meath in 1826, and was re-verified on June 26, 1863; one full set was originally verified for the county of the town of Drogheda in 1836, and was re-verified in June 18, 1862.

Monaghan.—One set in use, weights re-verified June 19, 1866, and measures, December 8, 1860.—Agrees with the books of the Department.

Queen's County.—One set stated to be in use, the weights officially verified, April 10, the measures, June 2, 1862.—By the books of the Department one full set was originally verified in 1826, and was re-verified as stated; two full sets were also originally verified on June 12, 1835, and have never been officially re-verified.

Roscommon.—One set stated to be in use, when last officially verified not stated.—By the books of the Department one full set was originally verified in 1827, and was re-verified March 11, 1864. A set was verified for the corporation of Athlone on September 25, 1826, but has not since been officially re-verified.

Sligo.—Two sets stated to be in use and last officially verified in February 1862.—By the books of the Department one set was originally verified in 1826, and was officially re-verified on January 24, 1862; and one set was originally verified on November 25, 1862.

Tipperary.—One set stated to be in use, last officially verified April 19, 1866.

By the books of the Department four full sets were originally verified, one in 1826, two more in 1835, and one in 1847. The first set was officially re-verified in 1860, the *weights* from 4 oz. downwards of two of the sets being renewed, and the *measures* not being sent for re-verification. Of the two sets originally verified in 1835, one has never been officially re-verified, the second was last re-verified in 1860, with new weights from 8 oz. downwards, new weights having been substituted in 1848, for the original, *which had been lost*. Of the set originally verified in 1847, new weights were substituted in 1851, *the original having been lost*. The set was re-verified in 1860, with the exception of the three larger measures of capacity, the bushel, half-bushel and peck, and the yard.

In the spring of 1867, this last-mentioned set was brought by the inspector at Nenagh to this office for re-verification. The weights and measures were in such bad condition (the 56 lbs. being also 2 drachms light although it had been used with the other weights for verifying the iron sub-standards used in Ireland,) that they were at once rejected. The *weights* were subsequently properly re-adjusted by Messrs. Nicholl and Fowler, and were officially re-verified on April 25, 1866. The *measures* were returned to Tipperary *without being officially re-verified.*

Tyrone.—One set stated to be in use and last officially re-verified January 30, 1864.—By the books of the Department one set only in use, but last re-verified on June 9, 1858.

Waterford.—No set stated to be in use.—By the books of the Department one full set was officially verified for the county of Waterford in 1828, and has not been since re-verified. A set for the city of Waterford was also verified in 1826, and was officially re-verified (including new weights from 8 oz. downwards) on September 14, 1861.

West Meath.—One complete set, including troy weights stated to be new, last officially re-verified November 2, 1861, and the troy weights stated to have been also locally re-verified "by the inspector on July 27, 1867, by the county Cavan copies."—By the books of the Department a full set of *avoirdupois* weights and of measures was originally verified on November 27, 1826, and was re-verified on November 2, 1861. A set of *troy* weights was verified, under a separate indenture on June 17, 1829, and has not been since officially re-verified. No troy weights have been verified for the county of Cavan.

Wexford.—One set stated to be in use, consisting of 12 avoirdupois weights, down to 8 drachms, the six small measures of capacity and the yard officially re-verified June 25, 1866.—By the books of the Department four full sets have been originally verified for the county of Wexford, two in 1826, and two in 1835; of these one full set (except the bushel, half-bushel, and peck) was re-verified on November 2, 1861; and the full set was last re-verified in January 1868, the weights from 8 oz. downwards being renewed.

Wicklow.—One set stated to be in use and last officially verified, December 12, 1861.—The weights stated to have been locally re-verified on April 8, 1867; with the *county of Kildare* standards. By the books of the Department five full sets have been originally verified, one set in 1826 and four more sets in 1836; the *weights* of one of the latter sets were re-verified in 1855, from the 8 oz. downwards being renewed, and this full set was last re-verified as stated on December 12, 1861.

In the returns, no gas-measuring standards are stated to have been verified, and in use in Ireland. But the following gas-measuring standards have been officially verified in 1861, viz.:—

City of Dublin	3	gasholders of	10	cubic feet.
„	2	„	5	„
„	1	„	1	„
City of Cork	2	„	10	„
„	1	„	5	„

There is no legal provision for the *re*-verification of gas-measuring standards.

H. W. Chisholm,
Warden.

Standards Department, February 21, 1868.

Appendix IV.—*continued.*

ABSTRACTS of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in IRELAND, for the Year ended December 31, 1866—*continued.*

ABSTRACT B.—NUMBER of BALANCES used by INSPECTORS; when adjusted; and Amount of Error detected by each Balance.

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
ANTRIM	26 Petty Sessional districts of the County, &c., including the City of Belfast, and the County of the Town of Carrickfergus, viz.:—								
	1. Ahoghill	2	Yearly	April 20, 1866	A slight variation; scarcely perceptible.				
	2. Antrim	2	„	May 30, 1867	4 drs.	1 dr.	¼ dr.	1 gr.	—
	3. Ballycastle	2	„	Sept. 4, 1866	6*d.* in silver.	Not known.			
	4. Ballyclare	2	„	Jan. 16, 1866	4 drs.	2 drs.	½ dr.	¼ dr.	—
	5. Ballymena	2	„	Nov. 23, 1866	Nothing apparent.				
	6. Ballymoney	2	„	May 3, 1867	¼ oz.	—	—	—	—
	7. Belfast, East	—	—	—	—	—	—	—	—
	8. Do. South	—	—	—	—	—	—	—	—
	9. Do. North	3	Yearly	Nov. 7, 1867	—	—	—	—	—
	10. Do. West	—	—	—	—	—	—	—	—
	11. Bushmills	2	Yearly	Sept. 4, 1867	—	—	—	—	—
	12. Carrickfergus, County of Town.	2	„	June 23, 1866	2 drs.	1 dr.	¼ dr.	⅛ dr.	—
	13. Carrickfergus, Petty Sess. Div.	2	„	Jan. 16, 1866	„	„	„	„	—
	14. Cushendale	2	„	May 3, 1867	¼ oz.	—	—	—	—
	15. Crumlin	2	„	May 6, 1867	2 drs.	1 dr.	½ dr.	¼ dr.	—
	16. Dervock	2	„	April 23, 1866	Cannot say.				
	17. Glenarm	2	„	May 3, 1867	¼ oz.	—	—	—	—
	18. Killagan	2	„	„	4 drs.	—	—	—	—
	19. Larne	2	„	„	¼ oz.	—	—	—	—
	20. Lisburn	2	„	May 6, 1867	2 drs.	1 dr.	½ dr.	¼ dr.	—
	21. Parkgate	2	„	May 13, 1867	8 drs.	4 drs.	—	—	—
	22. Portglenone	2	„	April 18, 1866	Slightest variation.				
	23. Randalstown	2	„	May 13, 1867	4 drs.	1 dr.	¼ dr.	1 gr.	—
	24. Rasharkin	2	„	May 3, 1867	„	—	—	—	—
	25. Toome	2	„	June 21, 1866	„	1 dr.	¼ dr.	—	—
	26. Whitehouse	2	„	Jan. 16, 1866	2 drs.	„	„	—	—
	Total for the County of Antrim	47							
ARMAGH	16 Petty Sessional Districts of the County, viz.:—								
	1. Armagh	2	Yearly	June 15, 1866	2 drs.	1 dr.	½ dr.	½ dr.	—
	2. Ballybot	2	„	July 26, 1866	Cannot be defined.				
	3. Charlemont	2	„	June 18, 1866	4 drs.	1 dr.	½ dr.	½ dr.	—
	4. Clonmacate	2	„	Aug. 9, 1866	¼ oz.	2 drs.	1 gr.	—	—
	5. Crossmaglen	2	„	July 27, 1866	Nil.				
	6. Forkill	2	„	July 26, 1866	No error.				
	7. Keady	2	„	Aug. 6, 1866	All correct.				
	8. Lurgan, Town	2	„	Aug. 9, 1866	¼ oz.	2 drs.	1 gr.	—	—
	9. Loughgall, Town	2	„	July 3, 1866	2 drs.	1 dr.	½ dr.	½ dr.	—
	10. Markethill	2	„	Aug. 6, 1866	All correct.				
	11. Middletown	2	„	„	3 drs.	1 dr.	½ dr.	—	—
	12. Newtownhamilton	2	„	„	All correct.				
	13. Portadown, Town	2	„	May 14, 1863	Amount of error cannot be given, as the Balances have not yet been compared with the County Standard Balances.				
	14. Do. Petty Sess.	2	„	Aug. 9, 1866	¼ oz.	2 drs.	1 gr.	—	—
	15. Poyntzpass	2	„	July 26, 1866	Cannot say.				
	16. Tynam	2	„	Aug. 6, 1866	¼ oz.	2 drs.	½ dr.	½ dr.	—
	Total for County of Armagh	32							
CARLOW	7 Petty Sessional Districts of the County, viz.:—								
	1. Bagnalstown	2	Yearly	June 15, 1866	3*d.* piece	—	—	—	—
	2. Borris	2	„	May 21, 1867	1 dr.	½ dr.	3 grs.	1 gr.	—
	3. Carlow	4	Not since issued.	Jan. 16, 1862	2 drs.	2 drs.	2 drs.	—	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
CARLOW—*cont.*	4. Fenagh	2	Yearly	June 15, 1866	6*d.* piece	—	—	—	—
	5. Hacketstown	2	,,	May 21, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	6. Myshall	2	,,	June 15, 1866	6*d.* piece	—	—	—	—
	7. Tullow	2	,,	May 21, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	Total for County Carlow	16							
CAVAN	18 Petty Sessional Districts of the County, viz.:—								
	1. Arva	—	—	—	—	—	—	—	—
	2. Bailieboro	2	Yearly	May 16, 1867	¼ oz.	—	—	—	—
	3. Balturbet	2	,,	May 11, 1867	1 oz.	⅛ oz.	1 dr.	¼ dr.	—
	4. Ballyconnell	2	,,	—	¼ oz.	¼ oz.	½ dr.	—	—
	5. Ballinagh	2	,,	May 17, 1867	—	—	—	—	—
	6. Ballyjamesduff	2	,,	,,	6 drs.	2 drs.	¼ dr.	2 grs.	—
	7. Bawnboy	2	,,	,,	2 ozs.	½ oz.	10 grs.	1 gr.	—
	8. Cavan	2	,,	May 11, 1867	1 oz.	⅛ oz.	1 dr.	¼ dr.	—
	9. Cootehill	13	,,	May 16, 1867	—	—	—	—	—
	10. Killyglasson	2	,,	May 17, 1867	1¼ oz.	¼ oz.	2 dwts.	3 grs.	—
	11. Kingscourt	2	,,	May 16, 1867	¼ oz.	2 drs.	1 dr.	½ dr.	—
	12. Killeshandra	2	,,	May 15, 1867	—	—	—	—	—
	13. Kilnaleck	2	,,	May 17, 1867	4 drs.	2 drs.	¼ dr.	2 grs.	—
	14. Mullagh	2	,,	May 14, 1867	½ oz.	—	—	—	—
	15. Mountnugent	2	,,	May 17, 1867	5 drs.	2 drs.	¼ dr.	2 grs.	—
	16. Shercock	2	,,	May 16, 1867	¼ oz.	—	—	—	—
	17. Swanlinbar	2	,,	May 17, 1867	¾ oz.	¼ oz.	10 grs.	1 gr.	—
	18. Virginia	2	,,	,,	2 drs.	2 drs.	5 grs.	—	—
	Total for County Cavan	45							
CLARE	20 Petty Sessional Districts of the County, viz.:—								
	1. Ballyvaughan	2	Yearly	July 24, 1867	2 drs.	1 dr.	½ dr.	—	—
	2. Broadford	2	,,	,,	,,	,,	,,	—	—
	3. Carrigaholt	2	,,	,,	,,	,,	,,	½ dr.	—
	4. Corrofin	2	,,	,,	—	—	—	—	—
	5. Crusheen	2	,,	,,	—	—	—	—	—
	6. Doonass	2	,,	,,	½ dr.	½ dr.	½ dr.	½ dr.	—
	7. Ennis, Town	4	,,	,,	2 drs.	1 dr.	,,	,,	—
	8. Ennistymon	2	,,	,,	½ dr.	½ dr.	,,	,,	—
	9. Feakle	2	,,	,,	1 dr.	,,	—	—	—
	10. Kildysart	2	,,	,,	3 drs.	,,	⅛ dr.	$\frac{1}{32}$ dr.	—
	11. Kilkee	2	,,	,,	2 drs.	1 dr.	½ dr.	½ dr.	—
	12. Killaloe	2	,,	,,	1 dr.	½ dr.	,,	,,	—
	13. Kilrush	2	,,	,,	2 drs.	1 dr.	,,	,,	—
	14. Knock	2	,,	,,	,,	,,	,,	,,	—
	15. Miltown Malbay	2	,,	,,	½ dr.	½ dr.	,,	,,	—
	16. Newmarket-on-Fergus	2	,,	,,	,,	,,	,,	,,	—
	17. Quin	2	,,	Oct. 4, 1867	,,	,,	,,	,,	—
	18. Six Mile Bridge	2	,,	July 24, 1867	,,	,,	,,	,,	—
	19. Tomgraney	2	,,	,,	3 drs.	2 drs.	¼ dr.	1 gr.	—
	20. Tulla	2	,,	,,	1 dr.	½ dr.	—	—	—
	Total for County Clare	42							
CORK West Riding.	22 Petty Sessional Districts, &c. of the W. R. County, viz.:—								
	1. Ballinspittle	2	Yearly	Sept. 29, 1866	¼ oz.	½ dr.	⅛ dr.	2 grs.	—
	2. Ballydrehob	—	—	—	—	—	—	—	—
	3. Ballyvourney	—	—	—	—	—	—	—	—
	4. Bandon	2	Yearly	Aug. 16, 1866	½ dr.	⅛ dr.	2 grs.	—	—
	5. Bantry	2	,,	,,	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	6. Carrigboy	2	,,	,,	,,	⅛ oz.	1 gr.	—	—
	7. Castletown	2	,,	June 19, 1866	,,	—	—	—	—
	8. Clonakilty	2	,,	Sept. 29, 1866	,,	—	—	—	—
	9. Dromoleaghue	2	,,	,,	—	—	—	—	—
	10. Dunmanway, Town	2	,,	June 19, 1866	—	—	—	—	—
	11. Do. Petty Sess.	2	,,	June 19, 1867	—	—	—	—	—
	12. Goleen	—	—	—	—	—	—	—	—
	13. Innishannon	2	Yearly	June 19, 1866	½ oz.	¼ oz.	⅛ oz.	$\frac{1}{16}$ oz.	—
	14. Macroon	—	—	—	—	—	—	—	—
	15. Millstrech	—	—	—	—	—	—	—	—
	16. Reinmeen	—	—	—	—	—	—	—	—
	17. Rosscarberry	2	Yearly	Sept. 29, 1866	¼ oz.	—	—	—	—
	18. Shandanagan	—	—	—	—	—	—	—	—
	19. Skibbereen	2	Yearly	May 31, 1866	4 drs.	1 dr.	½ dr.	—	—
	20. Skull	—	—	—	—	—	—	—	—
	21. Timoleague	2	Yearly	Sept. 29, 1866	4 drs.	½ dr.	—	—	—
	22. Union Hall	2	,,	May 31, 1866	,,	1 dr.	½ dr.	—	—
	Total for the W. R. County Cork	28							

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances.				
					With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Cork - - East Riding.	33 Petty Sessional Districts, &c., E. R. County, viz.:—								
	1. Ahadalane - -	2	Yearly	Jan. 18, 1867	4 drs.	—	—	—	—
	2. Ballymartel - -	2	„	„	¼ oz.	2 drs.	½ dr.	—	—
	3. Blarney - - -	2	„	„	4 drs.	—	—	—	—
	4. Buttevant - -	2	„	Jan. 25, 1867	½ oz.	1 dr.	¼ dr.	⅛ dr.	—
	5. Carrigaline - -	2	„	March 8, 1866	¼ oz.	½ dr.	⅛ dr.	—	—
	6. Castlemartyr - -	2	„	Jan. 25, 1867	⅛ oz.	¼ oz.	½ dr.	¼ dr.	—
	7. Castletownroche -	2	„	„	—	—	—	—	—
	8. Cecilstown - -	2	„	Jan. 24, 1867	¼ oz.	6*d.* piece	Barley-corn.	¼ Barleycorn.	—
	9. Charleville - -	2	„	Jan. 25, 1867	„	2 drs.	1 dr.	—	—
	10. Cloyne - - -	2	„	Jan. 18, 1867	—	4*d.* piece	3*d.* piece	1½*d.* in silver.	—
	11. Coachford - -	2	„	„	4 drs.	—	—	—	—
	12. Cork, City of - -	2	„	Jan. 9, 1867	—	—	—	—	—
	Do. do. - -	2	„	Jan. 29, 1866	—	—	—	—	—
	Do. do. - -	2	„	„	—	—	—	—	—
	13. Conna - - -	2	„	Jan. 24, 1867	—	—	—	—	—
	14. Doneraile - - -	2	„	Jan. 25, 1867	1 dr.	1 dr.	½ dr.	—	—
	15. Douglass - - -	2	„	Jan. 18, 1866	4 drs.	½ dr.	⅛ dr.	—	—
	16. Farran - - -	2	„	Jan. 18, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	17. Fermoy - - -	2	„	Jan. 24, 1867	½ dr.	¼ dr.	¼ dr.	—	—
	Do. - - -	2	„	„	„	„	„	—	—
	18. Kanturk - - -	2	„	„	¼ oz.	6*d.* piece	Barley-corn.	¼ Barleycorn.	—
	19. Kildorrery - -	—	—	—	—	—	—	—	—
	20. Kinsale, Borough -	2	Yearly	Jan. 18, 1867	2 drs.	½ dr.	½ dr.	½ dr.	—
	21. Knockagree - -	2	„	Jan. 24, 1867	—	—	—	—	—
	22. Liscarroll - - -	2	„	Jan. 18, 1867	Less than ¼ oz.	—	—	—	—
	23. Lisheens - - -	2	„	„	4 drs.	—	—	—	—
	24. Mallow - - -	2	„	Jan. 25, 1867	17 grs.	9 grs.	3 grs.	1 gr.	—
	25. Middleton - -	2	„	Jan. 18, 1867	—	—	—	—	—
	26. Mitchelstown - -	—	—	—	—	—	—	—	—
	27. Newmarket - -	2	Yearly	Jan. 24, 1867	¼ oz.	6*d.* piece	3*d.* piece	Barley-corn.	—
	28. Passagewest - -	2	„	Mar. 29, 1866	„	½ dr.	⅛ dr.	—	—
	29. Queenstown - -	2	„	Jan. 18, 1867	—	—	—	—	—
	30. Rathcormac - -	2	„	Jan. 24, 1867	½ dr.	¼ dr.	—	—	—
	31. Riverstown - -	2	„	Jan. 18, 1867	—	—	—	—	—
	32. Tracton - - -	2	„	„	2 drs.	1 dr.	1 dr.	1 dr.	—
	33. Youghal - - -	2	„	Jan. 25, 1867	½ oz.	¼ oz.	½ dr.	¼ dr.	—
	Total for the E. R. County Cork -	68							
Donegal -	26 Petty Sessional Districts of the County, viz.:—								
	1. Ardara - - -	2	Yearly	Oct. 12, 1866	4 drs.	4 drs.	4 drs.	4 drs.	—
	2. Avanmore - -	2	„	„	2 drs.	1 dr.	½ dr.	½ dr.	—
	3. Ballintra - - -	2	„	„	—	—	—	—	—
	4. Ballyshannon - -	2	„	Oct. 11, 1866	—	—	—	—	—
	5. Buncrana - - -	2	„	Oct. 10, 1866	½ dr.	—	—	—	—
	6. Burnfoot - - -	2	„	Oct. 11, 1866	—	—	—	—	—
	7. Burnbeg - - -	2	„	Oct. 25, 1866	2 drs.	1 dr.	—	—	—
	8. Cardonagh - -	2	„	Oct. 11, 1866	¼ oz.	2 grs.	1 gr.	½ gr.	—
	Do. - - -	—	—	—	—	—	—	—	—
	9. Churchill - - -	2	Yearly	Oct. 25, 1866	4 drs.	—	—	—	—
	10. Donegal - - -	2	„	New in 1863 -	Any amount of error can be detected.				
	11. Dungloe - - -	2	„	Oct. 12, 1866	2 drs.	1 dr.	½ dr.	⅛ dr.	—
	12. Dunfanaghy - -	2	„	Oct. 25, 1866	¼ oz.	½ dr.	⅛ dr.	—	—
	13. Glenteis - - -	2	„	Oct. 12, 1866	„	—	—	—	—
	14. Killybegs - - -	2	„	„	—	—	—	—	—
	15. Letterkenny - -	2	„	Oct. 26, 1866	1 dr.	—	—	—	—
	16. Lifford - - -	2	„	Oct. 11, 1866	¼ oz.	—	—	—	—
	17. Malin - - -	2	„	Oct. 10, 1866	—	—	—	—	—
	18. Milford - - -	2	„	Oct. 25, 1866	½ dr.	½ dr.	—	—	—
	19. Moville - - -	2	„	Oct. 11, 1866	4 drs.	1 dr.	—	—	—
	20. Newton Cunningham	2	„	Oct. 13, 1866	1 dr.	„	—	—	—
	21. Pettigo - - -	2	„	Oct. 11, 1866	—	—	—	—	—
	22. Ramelton - - -	3	„	Oct. 25, 1866	¼ dr.	—	—	—	—
	23. Rathmullan - -	2	„	„	½ dr.	½ dr.	—	—	—
	24. Rayhoe - - -	3	„	Oct. 12, 1866	2 drs.	1 dr.	¼ dr.	—	—
	25. Stranorlar - -	2	„	„	¼ oz.	¼ oz.	—	—	—
	26. Tamney - - -	4	„	Oct. 25, 1866	½ dr.	½ dr.	—	—	—
	Total for County Donegal - -	56							

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Down	26 Petty Sessional Districts of the County, viz.:—								
	1. Ardglass and Killough	2	Yearly	July 19, 1867	4 drs.	2 drs.	½ dr.	¼ dr.	—
	2. Ballynahinch, sub-district of Killinch.	2	„	Nov. 7, 1866	½ dr.	¼ dr.	⅛ dr.	$\frac{1}{16}$ dr.	—
	3. Ballynahinch, Petty Sessional division.	2	„	June 26, 1867	2 drs.	½ dr.	¼ dr.	„	—
	4. Banbridge	2	„	Nov. 7, 1866	½ oz.	„	⅛ dr.	$\frac{1}{32}$ dr.	—
	5. Bangor	2	„	Nov. 10, 1866	2 drs.	„	1 dwt.	2 grs.	—
	6. Castlewellan	Nil	Nil	—	—	—	—	—	—
	7. Donaghadee	2	Yearly	Aug. 5, 1867	4 drs.	2 drs.	½ dr.	½ dr.	—
	8. Downpatrick	2	„	July 15, 1867	2 drs.	1 dr.	„	„	—
	9. Dromara	2	„	June 26, 1867	„	½ dr.	¼ dr.	⅛ dr.	—
	10. Dromore	2	„	July 20, 1867	½ dr.	„	½ dr.	¼ dr.	—
	11. Gilford	2	„	Sept. 18, 1867	½ oz.	½ oz.	„	„	—
	12. Greyabbey	2	„	May 22, 1866	1 dr.	½ dr.	—	—	—
	13. Hillsboro'	2	„	Aug. 12, 1867	½ dr.	—	—	—	—
	14. Kilkeel	2	„	Feb. 16, 1866	„	½ dr.	—	—	—
	Killough. *See* Ardglass.								
	15. Killyleagh	2	„	July 20, 1867	„	„	¼ dr.	¼ dr.	—
	16. Moira	2	„	June 1, 1867	1 dr.	„	—	—	—
	17. Newry	2	„	Nov. 7, 1866	½ oz.	2 drs.	½ dr.	½ dr.	—
	18. Newtonbreda	Nil	Nil	—	—	—	—	—	—
	19. Newtonards	2	Yearly	Oct. 10, 1866	½ oz.	¼ oz.	⅛ dr.	⅛ dr.	—
	20. Newtonards, sub-district of Holywood.	2	„	Nov. 7, 1866	4 drs.	2 drs.	½ dr.	½ dr.	—
	21. Portaferry	2	„	Aug. 6, 1867	¼ oz.	½ dr.	¼ dr.	⅛ dr.	—
	22. Rathfriland	Nil	Nil	—	—	—	—	—	—
	23. Saintfield	2	Yearly	June 29, 1867	1 dr.	½ dr.	¼ dr.	⅛ dr.	—
	24. Seaford	Nil	Nil	—	—	—	—	—	—
	25. Warrenpoint	Nil	Nil	—	—	—	—	—	—
	26. Waringstown	2	Yearly	Oct. 7, 1867	½ oz.	2 drs.	⅛ dr.	$\frac{1}{32}$ dr.	—
	Total for the County of Down	42							
Dublin	Dublin, City of	4	Weekly	Jan., 1868	¼ oz.	⅛ oz.	1 gr.	—	—
	11 Petty Sessional Districts of the County, viz.:—								
	1. Balbriggan	2	Yearly	Nov. 29, 1866	—	—	—	—	—
	2. Blanchardstown	2	„	Sept. 19, 1866	2 drs.	1 dr.	5 grs.	2 grs.	—
	3. Cabinteely	2	„	May 28, 1866	—	—	—	—	—
	4. Drumcondra	2	„	„	6 drs.	2 drs.	½ dr.	—	—
	5. Lucan	2	„	Aug., 1866	¼ oz.	1 dr.	„	12 grs.	—
	6. New Castle	2	„	May 28, 1866	1 oz.	1½ drs.	—	—	—
	7. Raheny	2	„	May 1, 1865	½ dr.	—	—	—	—
	8. Rathfarnham	2	„	May 28, 1866	—	—	—	—	—
	9. Swords	2	Once in 5 years with Imperial.	April 16, 1862	1 oz.	2 drs.	½ dr.	1 gr.	—
	10. Tallaght	4	Yearly	May 28, 1866	—	—	—	—	—
	11. (Name of District not stated.)	1	„	„	—	—	—	—	—
	Total for County Dublin	27							
Fermanagh	13 Petty Sessional Districts of the County, viz.:—								
	1. Belleck	2	Yearly	Aug. 17, 1867	4 drs.	2 drs.	1 dr.	—	—
	2. Brookebore	2	„	Aug. 14, 1867	"Cannot discover any error."				
	3. Derrygonelly	2	„	Aug. 17, 1867	¼ oz.	—	—	—	—
	4. Derrylin	2	„	Aug. 15, 1867	1 dr.	1 dr.	½ dr.	1 gr.	—
	5. Enniskillen	2	„	„	¼ oz.	—	—	—	—
	6. Irvinestown	2	„	Aug. 17, 1867	2 drs.	½ dr.	1 dwt.	1 gr.	—
	7. Kesh	2	„	„	¼ oz.	¼ oz.	$\frac{1}{16}$ oz.	$\frac{1}{32}$ oz.	—
	8. Lack	2	„	Aug. 16, 1867	2 drs.	½ dr.	1 dwt.	1 gr.	—
	9. Letterbreen	2	„	Aug. 15, 1867	1 dr.	1 dr.	½ dr.	„	—
	10. Lisbella	2	„	Aug. 18, 1867	¼ oz.	—	—	—	—
	11. Lisnaskea	2	„	Aug. 23, 1866	¼ oz.	¼ oz.	¼ oz.	⅛ oz.	—
	12. Newtonbutler	2	„	Aug. 16, 1867	No means of determining smallest error.				
	13. Rosslea	2	„	„	¼ oz.	1 dr.	—	—	—
	Total for County Fermanagh	26							

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Galway - West Riding.	23 Petty Sessional Districts, &c. of the W.R. County, viz.:—								
	1. Ardrahan - - -	2	Yearly	March, 1867	—	—	—	—	—
	2. Arran - - -	2	„	Oct. 10, 1867	—	—	—	—	—
	3. Ballymoe - - -	2	„	Mar. 6, 1867	4 drs.	4 drs.	4 drs.	4 drs.	—
	4. Carna - - -	2	„	April, 1867	¼ oz.	—	—	—	—
	5. Castletown - -	2	„	April 11, 1867	4 drs.	4 drs.	4 drs.	4 drs.	—
	6. Clifden - - -	2	„	March 7, 1867	—	—	—	—	—
	7. Clonbur - - -	2	„	„ „	—	—	—	—	—
	8. Derreen - - -	2	„	„ „	4 drs.	4 drs.	1 dr.	—	—
	9. Dunmore - - -	2	„	March, 1867	„	„	4 drs.	4 drs.	—
	10. Galway Town - -	1	„	Sept. 26, 1867	5 drs.	1 dr.	½ dr.	1/16 oz.	—
	11. Galway Petty Sess. -	3	„	April 26, 1867	„	„	„	1/16 dr.	—
	12. Gort - - -	2	„	March, 1867	—	—	—	—	—
	13. Headford - - -	2	„	„ „	Cannot say.				
	14. Kinvana - - -	2	„	„ „	1 oz.	½ oz.	—	—	—
	15. Letterfrack - - -	2	„	March 6, 1867	—	—	—	—	—
	16. Maam - - -	2	„	March, 1867	—	—	—	—	—
	17. Milltown - - -	2	„	„ „	4 drs.	4 drs.	4 drs.	4 drs.	—
	18. Oranmore - -	2	„	July, 1867	—	—	—	—	—
	19. Oughterard - -	Nil	—	—	—	—	—	—	—
	20. Roundstone - -	2	Yearly	March, 1867	¼ oz.	—	—	—	—
	21. Spiddal - - -	2	„	„ „	—	—	—	—	—
	22. Tunam - - -	2	„	„ „	4 drs.	4 drs.	1 dr.	—	—
	23. Williamstown - -	2	„	„ „	„	„	4 drs.	4 drs.	—
	Total for the W.R. County Galway	44							
Galway - East Riding.	14 Petty Sessional Districts of the E.R. County, viz. :—								
	1. Athenry - - -	2	Yearly	Oct. 22, 1866	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	„ - - -	2	„	„ „	„	„	—	—	—
	2. Ahaseragh - -	2	„	„ „	40 grs.	15 grs.	13 grs.	2 grs.	—
	3. Ballinamore - -	2	„	„ „	8 drs.	4 drs.	1 dr.	½ dr.	—
	4. Ballinasloe - -	2	„	„ „	40 grs.	15 grs.	13 grs.	2 grs.	—
	5. Ballygar - - -	2	„	„ „	10 drs.	3 drs.	1½ drs.	½ dr.	—
	6. Eyrecourts - -	2	„	„ „	¼ oz.	—	—	—	—
	7. Gurteen - - -	—	—	—	—	—	—	—	—
	8. Killimore - - -	2	Yearly	Nov. 1, 1866	8 drs.	3 drs.	1½ drs.	½ dr.	—
	9. Laurencetown - -	2	„	Oct. 22, 1866	¼ oz.	—	—	—	—
	10. Loughrea - - -	2	„	„ „	„	¼ oz.	¼ oz.	—	—
	11. Marblehill - -	2	„	Nov. 1, 1866	„	1/8 oz.	1/16 oz.	1/32 oz.	—
	12. Mountbellewbridge -	2	„	Oct. 22, 1866	10 drs.	3 drs.	1½ drs.	½ dr.	—
	13. Mountshannon -	2	„	Nov. 1, 1866	¼ oz.	1/8 oz.	1/16 oz.	„	—
	14. Portumna - - -	2	„	„ „	8 drs.	2 drs.	1 dr.	„	—
	Total for the E.R. County Galway	28							
Kerry - -	23 Petty Sessional Districts of the County, viz.:—								
	1. Anniscaul - -	3	Yearly	June 6, 1867	—	—	—	—	—
	2. Ballylongford - -	3	Never required adjusting.	—	1½ drs.	½ dr.	½ dr.	½ dr.	—
	3. Cahirciveen - -	3	Yearly	Oct. 2, 1867	3 drs.	1 dr.	„	„	—
	4. Cahirdaneil - -	3	„	„ „	2½ drs.	1½ drs.	„	„	—
	5. Castleisland - -	3	„	June 6, 1867	2 drs.	1 dr.	½ dr.	½ dr.	
	6. Causeway - -	—	—	—	—	—	—	—	—
	7. Coolmagort - -	3	Yearly	June 6, 1867	—	—	—	—	—
	8. Castlegregory - -	3	„	„ „	—	—	—	—	—
	9. Dingle - - -	3	„	„ „	1½ drs.	½ dr.	—	—	—
	10. Gunsboro' - -	3	„	„ „	„	„	½ dr.	½ dr.	—
	11. Kenmore - -	—	—	—	—	—	—	—	—
	12. Killarney - - -	3	Yearly	Oct. 2, 1867	—	—	—	—	—
	13. Killorglin - -	3	„	Oct. 4, 1867	—	—	—	—	—
	14. Kilpadder - -	—	—	—	—	—	—	—	—
	15. Listowell - - -	2	Never required adjusting.	—	1½ drs.	½ dr.	½ dr.	½ dr.	—
	16. Miltown - - -	3	Yearly	Aug. 7, 1866	—	—	—	—	—
	17. Portmagee - -	3	„	Oct. 2, 1867	1½ drs.	½ dr.	½ dr.	—	—
	18. Sneen - - -	—	—	—	—	—	—	—	—
	19. Tarbert - - -	3	Never required adjusting.	—	1½ drs.	½ dr.	½ dr.	—	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
KERRY—*cont.*	20. Tralee	3	Yearly	Oct. 2, 1867	—	—	—	—	—
	21. Valentia	3	„	„ „	—	—	—	—	—
	22. Waterville	3	„	„ „	2 drs.	1 dr.	½ dr.	⅛ dr.	—
	23. (Not stated, the Inspector being absent.)			—	—	—	—	—	—
	Total for County Kerry	53							
KILDARE	14 Petty Sessional Districts of the County, viz.:—								
	1. Athy	2	Yearly	April 16, 1867	1 dr.	¼ dr.	8 grs.	2 grs.	—
	2. Ballymore	2	„	April 18, 1867	¼ oz.	2 drs.	½ dr.	—	—
	3. Carbury	2	„	„ „	½ dr.	4 grs.	½ gr.	¼ gr.	—
	4. Castledermot	2	„	April 16, 1867	1 dr.	1 scr.	3 grs.	1 gr.	—
	5. Celbridge	Nil	—	—	—	—	—	—	—
	6. Clane	2	Yearly	April 18, 1867	½ oz.	¼ oz.	1 dr.	¼ dr.	—
	7. Donadea	Nil	—	—	—	—	—	—	—
	8. Kilcullen	2	Yearly	April 18, 1867	¼ oz.	2 drs.	½ dr.	—	—
	9. Kildare	2	„	April 16, 1867	„	¼ oz.	—	—	—
	10. Kilmeaghue	2	„	April 22, 1867	—	—	—	—	—
	11. Monasterevan	2	„	April 16, 1867	—	—	—	—	—
	12. Naas	2	„	April 18, 1867	¼ oz.	2 drs.	½ dr.	—	—
	13. Newbridge	2	„	April 16, 1867	2 drs.	½ dr.	¼ dr.	—	—
	14. Rathangan	2	„	„ „	¼ oz.	¼ oz.	—	—	—
	Total for County Kildare	24							
KILKENNY	17 Petty Sessional Districts of the County, viz.:—								
	1. Ballyragget	2	Yearly	June 1, 1866	¼ oz.	2 dwts.	1 dwt.	4 grs.	—
	2. Callan	2	„	„ „	½ oz.	¼ oz.	½ dr.	¼ dr.	—
	3. Castlecomer	2	„	June 2, 1866	—	—	—	—	—
	4. Dunmore	2	„	June 1, 1866	—	—	—	—	—
	5. Freshford	2	„	„ „	2 drs.	—	—	—	—
	6. Gowran	2	„	„ „	—	—	—	—	—
	7. Goresbridge	2	„	„ „	—	—	—	—	—
	8. Graigue	2	„	„ „	—	—	—	—	—
	9. Johnstown	2	„	„ „	—	—	—	—	—
	10. Kilkenny City	2	„	May 20, 1867	1 oz.	¼ oz.	¼ oz.	—	—
	11. Kilmacow	2	„	June 1, 1866	¼ oz.	⅛ oz.	1/16 oz.	1 gr.	—
	12. Kilmaganny	2	„	„ „	½ oz.	¼ oz.	1 dwt.	½ dr.	—
	13. Kilmanagh	2	„	„ „	„	„	3d. piece.	—	—
	14. Piltown	2	„	„ „	—	—	—	—	—
	15. Rosbercon	2	„	„ „	2 drs.	1 dr.	20 grs.	—	—
	16. Stoneyford	2	„	June 2, 1866	4 drs.	—	—	—	—
	17. Thomastown	2	„	June 1, 1866	—	—	—	—	—
	Total for County Kilkenny	34							
KING'S COUNTY	16 Petty Sessional Districts of the County, viz.:—								
	1. Ballycumber	2	Yearly	April 11, 1867	—	—	—	—	—
	2. Banagher	2	„	April 12, 1867	¼ oz.	¼ oz.	¼ oz.	—	—
	3. Clara	2	„	„ „	less than ¼ oz.	„	„	—	—
	4. Clonegone	2	„	April 10, 1867	—	—	—	—	—
	5. Edenderry	2	„	„ „	4 drs.	1 dr.	⅛ dr.	⅛ dr.	—
	6. Fahey	2	„	„ „	„	2 drs.	¼ dr.	„	—
	7. Ferbane	2	„	April 11, 1867	—	—	—	—	—
	8. Frankfort	2	„	April 12, 1867	1 dr.	⅛ dr.	less than a grain.		—
	9. Kinmity	2	„	April 11, 1867	⅛ oz.	12 grs.	2 grs.	1 gr.	—
	10. Moneygall	2	„	April 10, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	11. Moystown	2	„	April 11, 1867	4 drs.	1 dr.	⅛ dr.	1/16 dr.	—
	12. Parsonstown	2	„	April 12, 1867	¼ oz.	¼ oz.	¼ oz.	1/16 oz.	—
	13. Phillipstown	2	„	„ „	„	„	„	„	—
	14. Shinrone	2	„	April 10, 1867	„	„	„	„	—
	15. Thomastown	2	„	April 11, 1867	—	—	—	—	—
	16. Tullamore	2	„	April 12, 1867	less than ¼ oz.	—	—	—	—
	Total for King's County	32							

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of late Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
LEITRIM - -	13 Petty Sessional Districts of the County, viz.:—								
	1. Ballinamore - -	2	Yearly	Aug. 24, 1867	4 drs.	2 drs.	½ dr.	½ dr.	—
	2. Carrick-on-Shannon -	2	„	„ „	—	—	—	—	—
	3. Carrigallen - -	2	„	„ „	2 drs.	1 dr.	¼ dr.	1/16 dr.	—
	Cashcarrigan. *See* Kishcarigan.								
	4. Cloone - - -	2	„	„ „	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	5. Dromahaire - -	2	„	„ „	2 drs.	½ dr.	¼ dr.	—	—
	6. Dromod - - -	2	„	„ „	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	7. Drumkeeran - -	2	„	Aug. 14, 1866	—	—	—	—	—
	8. Drumsna - - -	2	„	Aug. 24, 1867	—	—	—	—	—
	9. Drumshambo - -	2	„	„ „	—	—	—	—	—
	10. Kinlough - - -	2	„	Aug. 14, 1867	21 grs.	21 grs.	2 grs.	2 grs.	—
	11. Kishcarigan - -	2	„	Aug. 24, 1867	4 drs.	2 drs.	½ dr.	½ dr.	—
	12. Manorhamilton - -	2	„	Aug. 14, 1866	21 grs.	21 grs.	2 grs.	2 grs.	—
	13. Mohill - - -	2	„	Aug. 24, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	Total for County Leitrim - -	26							
LIMERICK -	23 Petty Sessional Districts of the County, including the City of Limerick, viz.:—								
	1. Abbeyfeal - -	2	Yearly	June 12, 1866	2 drs.	2 drs.	2 drs.	2 drs.	—
	2. Adare - - -	2	„	Sept. 14, 1867	⅛ oz.	⅛ oz.	⅛ oz.	⅛ oz.	—
	3. Askeaton - - -	2	„	Sept. 11, 1867	¼ oz.	¼ oz.	„	„	—
	4. Ballingary - -	2	„	„ „	„	„	2 drs.	2 drs.	—
	5. Ballymeety - -	2	„	Sept. 10, 1867	2 drs.	2 drs.	„	„	—
	6. Bruree - - -	2	„	Sept. 12, 1867	¼ oz.	¼ oz.	1/16 oz.	—	—
	7. Bruff - - -	2	„	Sept. 11, 1867	—	—	—	—	—
	8. Castleconnel - -	20	„	Sept. 10, 1867	2 drs.	2 drs.	2 drs.	2 drs.	—
	9. Croom - - -	2	„	Sept. 14, 1867	¼ oz.	—	—	—	—
	10. Foynes - - -	2	„	Oct. 9, 1867	4 drs.	4 drs.	4 drs.	—	—
	11. Galbally - - -	2	„	Sept. 12, 1867	„	2 drs.	2 drs.	—	—
	12. Glin - - -	2	„	Oct. 16, 1867	2 drs.	„	„	—	—
	13. Ikspital - - -	2	„	Sept. 12, 1867	½ dr.	½ dr.	½ dr.	—	—
	14. Kilfinnan - - -	2	„	„ „	¼ oz.	⅛ oz.	—	—	—
	15. Kilmallock - -	2	„	Oct. 9, 1867	⅛ oz.	„	⅛ oz.	⅛ oz.	—
	16. Limerick, City - -	1	„	Oct. 8, 1867	½ dr.	½ dr.	½ dr.	⅛ dr.	—
	17. Do. Petty Sessions	1	„	„ „	„	„	„	„	—
	18. Murroe - - -	2	„	Sept. 10, 1867	1 gr.	1 gr.	1 gr.	1 gr.	—
	19. Newcastle - -	2	„	Oct. 9, 1867	2 drs.	2 drs.	2 drs.	2 drs.	—
	20. New Palace - -	2	„	Sept. 10, 1867	4 drs.	4 drs.	6 grs.	4 drs.	—
	21. Pallaskenry - -	2	„	Sept. 14, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	22. Parkeale - - -	2	„	Sept. 11, 1867	„	„	2 drs.	2 drs.	—
	23. Patrickswell - -	2	„	Sept. 14, 1867	„	„	¼ oz.	¼ oz.	—
	Total for County Limerick -	62							
LONDONDERRY	15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—								
	1. Bellaghy - - -	2	Yearly	Feb. 13, 1867	—	—	—	—	—
	2. Clandy - - -	2	„	Feb. 20, 1867	—	—	—	—	—
	3. Coleraine - - -	2	„	Feb. 16, 1867	4 drs.	1 dr.	—	—	—
	4. Draper's Town - -	2	„	Feb. 14, 1867	—	—	—	—	—
	5. Dungwen - -	2	„	Feb. 11, 1867	1 oz.	¼ oz.	½ dr.	¼ dr.	—
	6. Eglington - - -	2	„	Feb. 20, 1867	„	⅛ oz.	—	—	—
	7. Garvagh - - -	2	„	Feb. 16, 1867	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	8. Innisrush - - -	2	„	Feb. 22, 1867	—	—	—	—	—
	9. Kilrea - - -	2	„	Feb. 16, 1867	½ oz.	¼ oz.	3 grs.	1 gr.	—
	10. Londonderry, City -	2	„	Aug. 1, 1867	—	—	—	—	—
	11. Do. Petty Sessions.	2	„	Feb. 20, 1867	—	—	—	—	—
	12. Maghera - - -	2	„	Feb. 22, 1866	¼ oz.	⅛ oz.	—	—	—
	13. Magherafelt - - -	2	„	Feb. 13, 1866	„	¼ oz.	1 gr.	—	—
	14. Moneymore - -	2	„	„ „	—	—	—	—	—
	15. Newtonlimavady -	2	Every 5 yrs.	June 17, 1867	1 dr.	½ dr.	¼ dr.	¼ dr.	—
	Total for County Londonderry -	30							
LONGFORD -	11 Petty Sessional Districts of the County, viz.:—								
	1. Ballynamuck - -	2	Yearly	July 31, 1866	—	—	—	—	—
	2. Ballinaloe - -	2	„	„ „	·04 oz.	·01 oz.	·008 oz.	·006 oz.	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Longford—*cont.*	3. Ballymahon	1	Yearly	July 31, 1867	—	—	—	—	—
	4. Carrickboy	2	,,	July 31, 1866	—	—	—	—	—
	5. Drumlish	2	,,	,, ,,	—	—	—	—	—
	9. Edgeworthstown	2	Compared with the *Imperial* Balances, July 31, 1866.	,, ,,	¼ oz.	Merely a shade or so.			
	7. Granard	2	Yearly	,, ,,	—	—	—	—	—
	8. Kenagh	—	—	—	—	—	—	—	—
	9. Lanesboro'	2	Yearly	July 31, 1867	—	—	—	—	—
	10. Longford Town	2	,,	July 31, 1866	4 drs.	2 drs.	2 drs.	2 drs.	—
	11. Newtownforbes	2	,,	,, ,,	,,	4 drs.	4 drs.	4 drs.	—
	Total for County Longford	19							
Louth	10 Petty Sessional Districts of the County, viz.:—								
	1. Ardee	2	Yearly	Feb. 28, 1867	—	—	—	—	—
	2. Carlingford	15	,,	,, ,,	1 oz.	½ oz.	1/16 oz.	1/16 oz.	—
	3. Castlebellingham	2	,,	Mar. 1, 1867	16 drs.	4 drs.	—	—	—
	4. Collon	2	,,	Feb. 28, 1867	4 drs.	1 dr.	½ dr.	¼ dr.	—
	5. Dundalk	2	,,	,, ,,	½ oz.	¼ oz.	1 dwt.	5 grs.	—
	6. Dunbar	2	,,	Mar. 1, 1867	1½ ozs.	4 drs.	½ dr.	—	—
	7. Louth	2	,,	Feb. 28, 1867	—	—	—	—	—
	8. Mell	2	,,	Mar. 1, 1867	1 oz.	4 drs.	—	—	—
	9. Ravensdale	2	,,	Feb. 28, 1867	1 dr.	—	—	—	—
	10. Termonfeckin	15	,,	Mar. 1, 1867	1 oz.	¼ oz.	½ dr.	—	—
	Total for County Louth	46							
Mayo	24 Petty Sessional Districts of the County, viz.:—								
	1. Achill	2	Yearly	July 25, 1867	—	—	—	—	—
	2. Bala	—	—	—	—	—	—	—	—
	3. Ballaghadereen	2	Yearly	July, 1866	½ oz.	¼ oz.	2 grs.	1 gr.	—
	4. Ballina	2	—	—	—	—	—	—	—
	5. Ballindine	2	Yearly	July 24, 1867	⅛ oz.	—	—	—	—
	6. Ballinrobe	2	,,	,, ,,	—	—	—	—	—
	7. Ballycastle	1	,,	July 25, 1867	1 oz.	1/14 oz.	1/56 oz.	3 grs.	—
	8. Ballycroy	2	,,	,, ,,	—	—	—	—	—
	9. Ballyglass	—	—	—	—	—	—	—	—
	10. Ballyhamis	2	Yearly	July 10, 1866	¼ oz.	¼ oz.	1 dr.	2 grs.	—
	11. Belmullett	2	,,	July 25, 1867	—	—	—	—	—
	12. Castlebar	—	—	—	—	—	—	—	—
	13. Claremorris	2	Yearly	July 24, 1867	4 drs.	2 drs.	1 dr.	1/20 dr.	—
	14. Cong	1	,,	July 1867	—	—	—	—	—
	15. Crossmolina	2	Twice a year	July 25, 1867	In the absence of a lesser weight than 4 drams, cannot say.				
	16. Foxford	—	—	—	—	—	—	—	—
	17. Hollymount	13	Yearly	July 24, 1867	—	—	—	—	—
	18. Killihane	2	,,	July 25, 1867	—	—	—	—	—
	19. Killala	2	,,	July 7, 1866	—	—	—	—	—
	20. Kilmain	2	,,	July 24, 1867	—	—	—	—	—
	21. Lomsburgh	2	,,	Not stated	¼ oz.	—	—	—	—
	22. Lowpark	2	,,	July 9, 1866	1 dr.	1 dr.	½ dr.	½ dr.	—
	23. Swinford	2	,,	,, ,,	,,	,,	,,	,,	—
	24. Westport	—	—	—	—	—	—	—	—
	Total for County Mayo	47							
Meath, West.	*See* Westmeath.								
Meath	18 Petty Sessional Districts of the County, including the town and county of Drogheda, viz.:—								
	1. Athboy	2	Yearly	Sept. 12, 1866	—	—	—	—	—
	2. Ballyvor	2	,,	,, ,,	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	3. Crossakiel	2	,,	,, ,,	—	—	—	—	—
	4. Drogheda Town	2	,,	July 7, 1866	½ dr.	½ dr.	½ dr.	½ dr.	—
	5. Drumconrath	2	,,	Sept. 18, 1866	¼ oz.	1 dr.	,,	,,	—
	6. Duleek	2	,,	Sept. 1, 1867	2 drs.	,,	¼ dr.	⅛ dr.	—
	7. Dunboyne	2	,,	Sept. 12, 1866	Not less than 4 drams.				
	8. Dunshaughlin	2	,,	,, ,,	1 dwt.	1 dwt.	12 grs.	6 grs.	—
	9. George's Cross	2	,,	Aug. 16, 1866	¼ oz.	1 dr.	½ dr.	½ dr.	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
MEATH—*cont.*	10. Julianstown	2	Yearly	Sept. 12, 1866	2 grs.	¼ gr.	⅓ gr.	1/16 gr.	—
	11. Kells	13	„	Sept. 11, 1866	—	—	—	—	—
	12. Longwood	8	„	Sept. 21, 1865	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	13. Moynalty	2	„	Sept. 11, 1866	—	—	—	—	—
	14. Navan	2	„	„ „	—	—	—	—	—
	15. Oldcastle	2	„	Sept. 12, 1866	—	—	—	—	—
	16. Slayne	2	„	Aug. 16, 1866	¼ oz.	1 dr.	½ dr.	½ dr.	—
	17. Summerhill	2	„	Sept. 11, 1866	—	—	—	—	—
	18. Trim	2	„	„ „	—	—	—	—	—
	Total for County Meath	53							
MONAGHAN	8 Petty Sessional Districts of the County, viz.:—								
	1. Ballybay	14	Yearly	May 17, 1867	1 oz.	½ oz.	¼ oz.	—	—
	2. Carrickmacross	—	—	—	—	—	—	—	—
	3. Castleblaney	13	Yearly	Dec. 19, 1866	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	4. Clones	1	„	„ „	—	—	—	—	—
	5. Emyvale	1	„	Dec. 18, 1866	—	—	—	—	—
	6. Monaghan	2	„	„ „	—	—	—	—	—
	7. Newbliss	1	„	Dec. 19, 1866	—	—	—	—	—
	8. Rockcorry	1	„	Mar. 27, 1867	—	—	—	—	—
	Total for County Monaghan	33							
QUEEN'S COUNTY.	16 Petty Sessional Districts of the County, viz.:—								
	1. Abbeyleix	2	Whenever defect becomes apparent.	July 4, 1866	¼ oz.	—	—	—	—
	2. Ballacolla	2	When required.	1864	„	—	—	No weight smaller than ¼ oz.	
	3. Ballybrittas	2	Yearly	July 8, 1867	⅛ oz.	½ dr.	1 gr.	—	—
	4. Ballylinan	—	—	—	—	—	—	—	—
	5. Borris-in-Ossory	2	Yearly	July 8, 1867	—	—	—	—	—
	6. Castlerain and Coolrain.	2	„	July 4, 1866	—	6*d.* piece	—	Small grain of shot.	
	7. Carlow-Graigue	—	—	—	—	—	—	—	—
	8. Clonaslie	2	Yearly	July 8, 1867	¼ oz.	—	—	—	—
	9. Durrow	2	„	July 4, 1866	„	—	—	—	—
	10. Maryborough — Imperial Balances	2	Imperial every 5 yrs.	Apr. 10, 1866	„	2 drs.	½ dr.	—	—
	Sub-standard Balances.	2	Sub-standard yearly.	July 8, 1867					
	11. Mountmellick	2	Yearly	„ „	—	—	—	—	—
	Do.	2	„	„ „	¼ oz.	—	—	—	—
	12. Mountrath	2	„	July 4, 1866	—	6*d.* piece	—	—	—
	13. Portarlington	2	„	July 8, 1867	¼ oz.	—	—	¼ oz.	—
	14. Rathdowney	2	„	Not known.	—	—	—	—	—
	15. Stradbally	2	„	July 8, 1867	¼ oz.	⅛ oz.	—	—	—
	16. Timahoe	2	„	„ „	„	„	—	—	—
	Total for Queen's County	32							
ROSCOMMON	22 Petty Sessional Districts of the County, viz.:—								
	1. Athlone	2	Yearly	Sept. 18, 1866	¼ oz.	1/16 oz.	—	—	
	2. Ballinasloe	2	„	Oct. 27, 1865	—	—	—	—	—
	3. Ballintobber	2	„	Sept. 18, 1866	1 oz.	½ oz.	—	—	—
	4. Ballinlough	2		„ „	„	„	—	—	—
	5. Ballyfarnon	2		Sept. 19, 1866	¾ oz.	2 drs.	1 dr.	—	—
	6. Ballyforan	2	„	Oct. 27, 1865	—	—	—	—	—
	7. Belanagars	2	„	Sept. 22, 1866	—	—	—	—	—
	8. Boyle	2	„	Sept. 19, 1866	¼ oz.	⅛ gr.	1/16 gr.	1/24 gr.	—
	9. Brideswell	2	„	Oct. 27, 1865	—	—	—	—	—
	10. Castlerea	2	„	Sept. 18, 1866	1 oz.	½ oz.	—	—	—
	11. Coolderry	2	„	Sept. 20, 1866	—	—	—	—	—
	12. Cootehall	2	„	Sept. 19, 1866	½ oz.	4 drs.	1 dr.	4 grs.	—
	13. Croghan	1	„	Sept. 22, 1866	—	—	—	—	—
	14. Elphin	2	„	Sept. 18, 1866	—	—	—	—	—
	15. Frenchpark	2	„	Sept. 22, 1866	—	—	—	—	—
	16. Keadne	2	„	Sept. 19, 1866	½ oz.	4 drs.	1 dr.	4 grs.	—
	17. Kilmore	1	„	Sept. 18, 1866	—	—	—	—	—
	18. Lecarrow	2	„	Sept. 20, 1866	—	—	—	—	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Roscommon—*cont.*	19. Roscommon	2	Yearly	Sept. 20, 1866	—	—	—	—	—
	20. Ruskey	2	„	Sept. 19, 1866	¼ oz.	¼ oz.	¼ oz.	¼ oz.	—
	21. Strokestown	2	„	„ „	4 drs.	4 drs.	1 gr.	—	—
	22. Tulsk	2	„	Sept. 18, 1866	—	—	—	—	—
	Total for County Roscommon	42							
Sligo	14 Petty Sessional Districts of the County, viz.:—								
	1. Ardnaree	2	Yearly	Mar. 19, 1867	⅛ oz.	1/16 oz.	⅓ dr.	1/10 dr.	
	2. Ballinaford	2	„	Mar. 14, 1867	„	1 dr.	„	„	—
	3. Ballymote	2	„	Mar. 23, 1867	„	„	„	„	—
	4. Colloney	2	„	Mar. 13, 1867	„	1/16 oz.	1/16 oz.	1/16 oz.	—
	5. Coolaney	2	„	„ „	„	1 dr.	⅓ dr.	1/10 dr.	—
	6. Dromore	2	„	Mar. 19, 1867	„	„	„	„	—
	7. Enniscrone	2	„	„ „	„	„	„	„	—
	8. Grange	2	„	„ „	„	„	½ dr.	¼ dr.	—
	9. Mullaghroe	2	„	Mar. 23, 1867	„	„	⅓ dr.	1/10 dr.	—
	10. Riverstown	2	„	Mar. 14, 1867	„	„	„	„	—
	11. Skreen	2	„	„ „	„	„	„	„	—
	12. Sligo	4	„	„ „	½ dr.	—	—	—	—
	13. Sovey	2	„	Mar. 13, 1867	⅛ oz.	1 dr.	⅓ dr.	1/10 dr.	—
	14. Tobercurry	2	„	„ „	„	„	„	„	—
	Total for County Sligo	30							
Tipperary - North Riding.	9 Petty Sessional Districts of the N. R. County, viz.:—								
	1. Borrisokane	2	Yearly	May 29, 1867	1 dr.	1/8 dr.	1/16 dr.	—	—
	2. Borrisoleigh	2	„	„ „	¼ oz.	¼ oz.	⅙ dwt.	⅛ dwt.	—
	3. Cloughjordan	2	„	„ „	1 dr.	⅛ dr.	1/16 dr.	—	—
	4. Lorrha	2	„	June 10, 1867	2 drs.	1 dr.	½ dr.	½ dr.	—
	5. Nenagh	2	„	May 29, 1867	¼ oz.	1 gr.	—	—	—
	6. Newport	2	„	„ „	—	4 drs.	—	—	—
	7. Roscrea	2	„	„ „	2 drs.	1 dr.	10 grs.	4 grs.	—
	8. Templemore	2	„	„ „	—	—			—
	9. Thurles	2	„	„ „	¼ oz.	¼ oz.	¼ oz.	¼ oz.	
	Total for N. R. County Tipperary	18							
Tipperary - South Riding.	16 Petty Sessional Districts of the S. R. County, viz.:—								
	1. Ardfinan	2	Yearly	Feb. 14, 1867	—		—		
	2. Ballynonty	5	„	Feb. 25, 1867	—		—		
	3. Ballyporeen	2	„	Feb. 13, 1867	—	—	-	—	
	4. Bansha	2	„	Feb. 14, 1867	4 drs.	4 drs.	4 drs.	4 drs.	
	5. Cahir	2	„	„ „	½ oz.	¼ oz.	—	—	—
	6. Cappawhite	13	„	Feb. 18, 1867	1½ drs.	1 dr.	15 grs.	4 grs.	—
	7. Carrick-on-Suir	2	„	Feb. 16, 1867	½ oz.	¼ oz.	2 drs.	½ dr.	—
	8. Cashel	2	„	Feb. 13, 1867	4 drs.	4 drs.	4 drs.	4 drs.	—
	9. Clogheen	2	„	„ „	¼ oz.	—	—	—	—
	10. Clonmel	3	Oct. 20, 1865	„ „	1 dr.	½ dr.	½ dr.	½ dr.	—
	11. Dundrum	2	Yearly	Feb. 18, 1867	1½ drs.	1 dr.	15 grs.	4 grs.	—
	12. Fethard	2	—	—	4 drs.	3 drs.	½ dr.	½ dr.	—
	13. Golden	2	Yearly	Feb. 14, 1867	—	—	—	—	—
	14. Mullinhahone	2	„	Feb. 18, 1867	8 drs.	3 drs.	½ dr.	¼ dr.	—
	15. New Inn	2	„	Feb. 14, 1867	¼ oz.	2 drs.	„	„	—
	16. Tipperary	2	„	Feb. 18, 1867	4 drs.	1 dr.	„	1 gr.	—
	Total for S. R. County Tipperary	47							
Tyrone	20 Petty Sessional Districts of the County, viz.:—								
	1. Aughnacloy	2	Yearly	Feb. 12, 1867	¼ oz.	—	—	—	—
	2. Ballygawley	2	„	„ „	½ oz.	¼ oz.	—	—	—
	3. Caledon	2	„	„ „	¼ oz.	½ dr.	2 grs.	1 gr.	—
	4. Carrickmore	2	„	„ „	4 drs.	—	—	—	—
	5. Castlederg	2	„	Feb. 13, 1867	¼ oz.	¼ oz.	4 drs.	—	—
	6. Clogher	2	„	Feb. 12, 1867	¼ oz.	¼ oz.	¼ oz.	—	—
	7. Coagh	2	„	Feb. 13, 1867	¼ oz.	¼ oz.	4 drs.	—	—
	8. Cookstown	2	„	Feb. 15, 1867	„	„	„	—	—
	9. Dunmanagh	2	„	Feb. 13, 1867	„	—	—	—	—
	10. Dungannon	2	„	Feb. 15, 1867	„	—	—	—	—
	11. Fintona	2	„	Feb. 13, 1867	½ oz.	—	—	—	—
	12. Fivemiletown	2	„	„ „	„	—	—	—	—

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Tyrone—*cont.*	13. Gortin	1	Yearly	Feb. 14, 1867	¼ oz.	—	—	—	—
	14. Newton Stewart	2	„	Feb. 13, 1867	4 dr.	2 dr.	1 dr.	1 gr.	—
	15. Moy	2	„	Feb. 15, 1867	¼ oz.	—	—	—	—
	16. Omagh	2	„	Feb. 12, 1867	4 oz.	—	—	—	—
	Do.	4	Every 5 years	Jan. 30, 1864	2 oz.	1 dr.	1 dr.	—	—
	17. Pomeroy	2	Yearly	Feb. 15, 1867	¼ oz.	—	—	—	—
	18. Stewartstown	2	„	„ „	„	¼ oz.	4 dr.	—	—
	19. Strabane	2	„	Feb. 13, 1867	„	„	„	—	—
	20. Trillick	2	„	„ „	½ oz.	—	—	—	—
	Total for County Tyrone	43							
Waterford	15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz.:—								
	1. Ballymacarberry	1*	Yearly	Mar. 11, 1865	—	—	6 gr.	4 gr.	—
	2. Callahane	—*	—	Dec. 12, 1864	—	—	—	—	—
	3. Cappoquin	—	—	—	—	—	—	—	—
	4. Carrickbeg	2	Yearly	—	—	—	—	—	—
	5. Clashmore	1*	—	—	—	—	—	—	—
	Do.	2	Yearly	Dec. 7, 1864	—	—	—	—	—
	6. Dungarvan	1*	„	Dec. 8, 1864	1 oz.	½ oz.	¼ oz.	—	—
	7. Kilmacthomas	2	„	Dec. 10, 1864	—	—	—	—	—
	8. Lismore	2	Never	—	—	—	—	—	—
	9. Portlaw	2	Yearly	Dec. 10, 1864	—	—	—	—	—
	10. Stradbally	2	„	„ „	1 oz.	½ oz.	¼ oz.	—	—
	11. Tallow	2	„	Dec. 6, 1864	2 oz.	¼ oz.	—	—	—
	12. Tramore	—*	—	—	—	—	—	—	—
	13. Villier's Town	1*	—	—	—	—	—	—	—
	14. Waterford, St. Patrick's Hall.	2	Yearly	April 3, 1867	4 dr.	2 dr.	½ dr.	1 gr.	—
	15. Waterford, Boro.	3	Once in 4 yrs.	Dec., 1863	2 dr.	½ dr.	¼ dr.	„	—
	Total for County Waterford	23							
Westmeath	16 Petty Sessional Districts of the County, viz.:—								
	1. Ballynacargy	2	Yearly	Aug. 3, 1867	½ oz.	2 dr.	1 dr.	½ dr.	—
	2. Ballymore	2	„	May 14, 1866	4 dr.	22 gr.	—	—	—
	3. Brawney	2	„	May 16, 1866	¼ oz.	1/16 oz.	—	—	—
	4. Castlepollard	2	„	Aug. 3, 1867	—	—	—	—	—
	5. Clonmellon	2	„	Oct. 22, 1866	—	—	—	—	—
	6. Collinstown	2	„	Aug. 3, 1867	3 dr.	2 dr.	¼ dr.	⅛ dr.	—
	7. Delvin	2	„	May 14, 1866	—	—	—	—	—
	8. Glasson	2	„	May 16, 1866	¼ oz.	1/16 oz.	—	—	—
	9. Kilbeggan	—	—	—	—	—	—	—	—
	10. Killucan	2	Yearly	May 14, 1866	½ oz.	2 dr.	—	—	—
	11. Knockdrin	2	„	Aug. 3, 1867	¼ oz.	¼ oz.	—	—	—
	12. Moate	2	„	May 14, 1866	4 dr.	½ dr.	—	—	—
	13. Mullingar	2	„	Aug. 7, 1867	2 dr.	„	1 gr.	—	—
	14. Multifarnham	2	Not since issued.	Aug. 8, 1863	¼ oz.	—	—	—	—
	15. Rathowen	2	Yearly	Aug. 7, 1867	½ oz.	2 dr.	1 dr.	½ dr.	
	16. Rochfortbridge	2	Not since issued.	Aug. 3, 1863	¼ oz.	—	—	—	—
	Total for County Westmeath	30							
Wexford	12 Petty Sessional Districts of the County, viz.:—								
	1. Arthurstown	2	Yearly	Mar. 26, 1867	1½ oz.	4 dr.	4 dr.		—
	2. Clonroche	2	„	June 25, 1866	—	—	—	—	—
	3. Duncormick	2	„	Mar. 20, 1867	¼ oz.	¼ oz.	1 dwt.	½ gr.	—
	4. Enniscorthy	2	„	June 25, 1866	—		—	—	—
	5. Ferns	2	„	March, 1867	¼ oz.	—	—	—	—
	6. Gorey	2	„	June 25, 1866	—	—	—	—	—
	7. Killinick	2	„	Mar. 20, 1867	1 oz.	¼ oz.	—	—	—
	8. New Ross	2	„	June 27, 1866	—	—	—	—	—
	9. Newtonbarry	2	„	Mar. 20, 1867	¼ oz.	—	—	—	—

* Note.—County of Waterford. In consequence of some of the balances belonging to this county having been condemned and not replaced, many of the sub-standards have not been re-verified since 1864. The fault lay with the makers in London, who, in reply to the Grand Jury, sent over, on different occasions, two sets of balances which had to be returned as imperfect.—(County Inspector's Minute, 17th October 1867.)

Appendix IV.—*cont.*—Abstract B. of Returns from Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number of Balances used.	How often usually adjusted.	Date of last Adjustment.	Smallest Amount of Error that can be detected by the Balances. With 56 lbs. in the Pan.	With 7 lbs. in the Pan.	With 1 lb. in the Pan.	With 1 oz. in the Pan.	With 1 grain in the Pan.
Wexford—*cont.*	10. Oulart	2	Yearly	Mar. 20, 1867	½ oz.	¼ oz.	⅛ oz.	$\frac{1}{16}$ oz.	—
	11. Taghmon	2	„	„ „	¼ oz.	„	1 dwt.	½ gr.	—
	12. Wexford	2	„	„ „	1 oz.	„	—	—	—
	Total for County Wexford	24							
Wicklow	13 Petty Sessional Districts of the County, viz.:—								
	1. Arklow	—	—	—	—	—	—	—	—
	2. Baltinglass	3	Yearly	May 23, 1867	½ oz.	½ oz.	¼ oz.	1 dr.	—
	3. Blessington	2	„	„ „	55 gr.	16 gr.	1½ gr.	¾ gr.*	—
	4. Bray	2	„	May 5, 1866	No means of ascertaining.				
	5. Carnew	2	„	„ „	1 dr.	½ dr.	—	—	—
	6. Coolkenno	2	„	May 3, 1866	„	„	—	—	—
	7. Dunlavin	2	„	May 24, 1867	⅛ oz. smallest weight in use.				
	8. Enniskerry	2	„	May 5, 1866	„ „				
	9. Newtown Mount Kennedy.	2	„	May 14, 1866	No means of testing.				
	10. Rathdrum	3	„	May 23, 1867	½ oz.	½ oz.	¼ oz.	1 dr.	—
	11. Redcross	2	„	„ „	¼ oz. smallest weight in use.				
	12. Tinahely	2	„	May 3, 1866	2 dr.	½ dr.	—	—	—
	13. Wicklow, for County	2	Not since 12 Dec., 1861.	May 12, 1861	„	No smaller weight than ½ dr. to test with.			
	Do., Petty Sess. Div.	2	Yearly	May 2, 1867	1 dr.	½ dr.	—	—	—
	Total for County Wicklow	28							

* Stated to be only "an approximate guess," 2 drs. being the smallest weight in use.

SUMMARY OF ABSTRACT.

County.	Number of Balances used.	County.	Number of Balances used.
Antrim	47	Limerick	62
Armagh	32	Londonderry	30
Carlow	16	Longford	19
Cavan	45	Louth	46
Clare	42	Mayo	47
Cork, W.R.	28	Meath	53
Cork, E.R.	68	Monaghan	33
Donegal	56	Queen's County	30
Down	42	Roscommon	42
Dublin	27	Sligo	30
Fermanagh	26	Tipperary, N.R.	18
Galway, W.R.	44	Tipperary, S.R.	47
Galway, E.R.	28	Tyrone	43
Kerry	53	Waterford	23
Kildare	24	Westmeath	30
Kilkenny	34	Wexford	24
King's County	32	Wicklow	28
Leitrim	26	Total	1,275

Appendix IV.—*continued.*

REMARKS BY THE WARDEN OF THE STANDARDS.

It would appear from the returns made by the several Inspectors of Weights and Measures, from which the preceding Abstract of the number, &c. of balances used by them has been made:—

1. That it is the general practice in Ireland for each Inspector to have two balances, one for large and the other for small weights. In some instances the Inspector has only one balance for use. The experience of the Standards Department leads to the conclusion that two balances are quite insufficient for the accurate comparison of weights varying from 56 lbs. to ¼ oz.

2. In the following districts it is stated that the Inspector has *no balance*, although many weights have been compared and stamped, or have been seized as defective, during the year, the numbers of which are stated in Abstracts C. and D.

County.	District.	If Weights stamped or seized.
Antrim	Belfast	Weights stamped.
Cork, W.R.	Ballydrehob	,,
	Ballyvourney	,,
	Goleen	Weights stamped and seized.
	Macroon	,, ,,
	Millstrech	,, ,,
	Ranmœr	,, ,,
	Shandanagan	,, ,,
	Skull	,, ,,
Cork, E.R.	Kildorrery	,, ,,
Down	Castlewellan	,, ,,
	Newtonbreda	Weights stamped.
Kerry	Causeway	,,
	Kenmore	,,
	Kilpadder	,,
	Sneen	,,
Longford	Kenagh	,,
Mayo	Bala	,,
	Ballyglass	Weights stamped and seized.
	Foxford	Weights stamped.
Monaghan	Carrickmacross	,,
Queen's County	Ballylinan	Weights stamped and seized.
	Carlow Graigue	,, ,,
Wicklow	Arklow	Weights stamped.

In the county of Waterford, there appear to be four Petty Sessional districts furnished with sub-standards, where they have had no balances since 1864, the fault being laid to the London scale makers. It is, however, stated that no weights have been verified in these districts during the year 1866.

3. It has been shown in Abstract A. that it is the general practice in Ireland for the Inspector to have no smaller standard weight than the ¼ oz. or 4 drams; accordingly, in a large proportion of the Returns, it is stated that the smallest amount of error that can be detected by the balances is ¼ oz. When a smaller weight is stated it is one that has not been duly verified. In many of the returns the columns intended to show the smallest errors are left blank.

It may be added, that with respect to ordinary shop balances in good condition, a balance constructed for a 1 lb. in each pan will turn when thus loaded with a difference of 4 grains. The ordinary balance for 1 lb. standards which is now used in the Department, and has been in use since 1825, being similar to those used by the Inspectors, will turn with about 0·1 grain, when loaded with 1 lb. in each pan.

4. As to the periods when the balances are adjusted, the general practice in Ireland is shown to be that the Inspector's balances are adjusted once a year only. In the city of Dublin only they are stated to be adjusted weekly. An adjustment of balances once a year only, to be used with standards, appears to be quite insufficient for due accuracy.

H. W. Chisholm,
Warden.

Standards Department, February 24, 1868.

Appendix IV.—*continued.*

ABSTRACTS of RETURNS from the LOCAL INSPECTORS of WEIGHTS and MEASURES in IRELAND, for the Year ended December 31, 1866—*continued.*

ABSTRACT C.—NUMBER of FALSE and DEFECTIVE WEIGHTS, MEASURES, and BALANCES, SEIZED, &c., by INSPECTORS; AMOUNT of PENALTIES and COSTS; and to whom PAID.

Note.—In all cases the Penalties and Costs were paid to the Clerk of the Petty Sessions at which the Convictions took place. See Remarks by the Warden of the Standards, p. 215.

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.			
												£ s. d.	£ s. d.
ANTRIM -	26 Petty Sessional Districts of the County, &c., including the City of Belfast and the County of the Town of Carrickfergus, viz.:—												
	1. Ahoghill - - -	108	—	7	—	108	—	—	—	—	21	2 12 6	0 1 1
	2. Antrim - - -	—	—	—	—	—	—	—	—	—	—	—	—
	3. Ballycastle - -	2	—	—	—	2	—	—	—	—	2	0 5 0	0 2 0
	4. Ballyclare - -	18	5	3	*	10	—	*	*	—	12	0 10 0	0 8 0
	5. Ballymena - -	99	—	—	2	97	—	—	—	—	81	3 19 1	0 1 1
	6. Ballymoney - -	30	2	—	27	3	—	—	2	—	9	0 13 0	1 6 0
	7. Belfast, East - -	32	3	—	1	31	—	—	3	—	15	4 10 0	2 4 6
	8. Do. South - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Do. North - -	—	—	—	—	—	—	—	—	—	—	—	—
	10. Do. West - -	4	—	—	—	4	—	—	—	—	1	0 10 0	0 1 6
	11. Bushmills - -	20	—	—	—	20	—	—	—	—	8	1 7 0	0 12 0
	12. Carrickfergus, County of Town.	—	—	—	—	—	—	—	—	—	—	—	—
	13. Carrickfergus, Petty Sess. District.	19	1	1	—	19	—	—	1	—	4	0 16 6	0 4 0
	14. Cushendall - -	—	—	—	—	—	—	—	—	—	—	—	—
	15. Crumlin - - -	131	—	11	—	42	*	—	—	—	42	18 14 6	2 2 0
	16. Dervock - - -	—	—	—	—	—	—	—	—	—	—	—	—
	17. Glenarm - - -	—	—	—	—	—	—	—	—	—	—	—	—
	18. Killagan - - -	11	—	7	—	11	—	—	—	—	5	1 17 6	0 5 0
	19. Larne - - -	—	—	—	—	—	—	—	—	—	—	—	—
	20. Lisburn - - -	2	—	—	—	2	—	—	—	—	2	0 1 0	0 2 0
	21. Parkgate - - -	—	—	—	—	—	—	—	—	—	—	—	—
	22. Portglenone - -	28	4	3	2	26	—	—	4	—	15	2 3 6	0 16 0
	23. Randalstown - -	—	—	—	—	—	—	—	—	—	—	—	—
	24. Rasharkin - -	4	—	—	—	4	—	—	—	—	3	0 3 0	0 3 0
	25. Toome - - -	—	—	—	—	—	—	—	—	—	—	—	—
	26. Whitehouse - -	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County of Antrim - -	508	15	32	32	379	—	—	11	—	220	38 2 7	8 8 2
ARMAGH -	16 Petty Sessional Districts of the County, viz.:—												
	1. Armagh - - -	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballybot - - -	14	8	1	—	14	—	*	—	—	3	1 0 0	0 4 0
	3. Charlemont - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Clonmacate - -	50	—	1	—	50	—	—	—	—	18	1 19 9	1 12 0
	5. Crossmaglen - -	2	—	5	—	2	—	—	—	—	5	1 10 0	0 6 6
	6. Forkhill - - -	7	—	—	—	—	—	—	—	—	2	0 3 6	0 2 0
	7. Keady - - -	—	—	—	—	—	—	—	—	—	—	—	—
	8. Lurgan, Town - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Loughgall, Town -	—	—	—	—	—	—	—	—	—	—	—	—
	10. Markethill - -	—	—	—	—	—	—	—	—	—	—	—	—
	11. Middletown - -	19	—	3	—	19	—	—	—	—	5	0 13 0	0 5 0
	12. Newtownhamilton -	—	—	—	—	—	—	—	—	—	—	—	—
	13. Portadown, Town -	—	—	—	—	—	—	—	—	—	—	—	—
	14. Do. Petty Sess.	—	—	3	—	—	—	—	—	—	3	0 6 0	0 3 6
	15. Poyntzpass - -	—	—	2	—	—	—	—	—	—	1	0 1 0	0 2 0
	16. Tynan - - -	—	—	—	—	—	—	—	—	—	—	—	—
	Total for the County of Armagh - -	92	8	15	—	85	—	—	—	—	37	5 13 3	2 15 0

* Not stated in Return.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£ s. d.	£ s. d.
Carlow - -	7 Petty Sessional Districts of the County, viz.:—												
	1. Bagnalstown - -	—	3	—	—	—	—	—	—	3	1	0 0 6	0 1 0
	2. Borris - - -	—	1	—	—	—	—	—	1	—	1	0 0 6	0 1 0
	3. Carlow - - -	4	3	2	—	4	—	—	3	—	7	1 16 0	0 7 6
	4. Fenagh - - -	—	—	—	—	—	—	—	—	—	—	—	—
	5. Hacketstown - -	—	—	—	—	—	—	—	—	—	—	—	—
	6. Myshall - - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Tullow - - -	43	—	—	—	43	—	—	—	—	16	3 11 0	0 16 6
	Total for the County of Carlow - -	47	7	2	—	47	—	—	4	3	25	5 8 0	1 6 0
Cavan - -	18 Petty Sessional Districts of the County, viz.:—												
	1. Arva - - -	—	—	—	—	—	—	—	—	—	—	—	—
	2. Bailieborough - -	—	1	—	—	—	—	*	*	—	1	0 10 0	0 1 0
	3. Belturbet - - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Ballyconnell - -	—	—	—	—	—	—	—	—	—	—	—	—
	5. Ballinagh - -	24	—	2	1	23	—	—	—	—	1	2 6 0	0 12 0
	6. Ballyjamesduff - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Bawnboy - - -	—	—	—	—	—	—	—	—	—	—	—	—
	8. Cavan - - -	—	—	—	—	—	—	—	—	—	46	3 13 6	2 5 0
	9. Cootehill - - -	12	—	—	—	12	—	—	—	—	1	0 5 0	0 3 0
	10. Killyglasson - -	—	—	—	—	—	—	—	—	—	—	—	—
	11. Kingscourt - -	—	—	—	—	—	—	—	—	—	—	—	—
	12. Killishandra - -	—	—	—	—	—	—	—	—	—	—	—	—
	13. Kilnaleck - -	—	—	—	—	—	—	—	—	—	—	—	—
	14. Mullagh - - -	—	—	—	—	—	—	—	—	—	—	—	—
	15. Mountnugent - -	—	—	—	—	—	—	—	—	—	—	—	—
	16. Shercock - - -	—	—	—	—	—	—	—	—	—	—	—	—
	17. Swanlinbar - -	—	—	—	—	—	—	—	—	—	—	—	—
	18. Virginia - - -	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Cavan - - -	36	1	2	1	35	—	—	—	—	49	6 14 6	3 1 0
Clare - -	20 Petty Sessional Districts of the County, viz.:—												
	1. Ballyvaughan - -	2	—	—	—	—	2	—	—	—	1	0 0 3	0 1 0
	2. Broadford - -	—	—	—	—	—	—	—	—	—	—	—	—
	3. Carrigaholt - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Corofin - - -	—	—	—	—	—	—	—	—	—	—	—	—
	5. Crusheen - - -	—	—	—	—	—	—	—	—	—	—	—	—
	6. Doonass - - -	—	—	3	—	—	—	—	—	—	1	0 0 6	0 1 0
	7. Ennis Town - -	146	2	11	32	114	—	—	2	—	31	14 15 0	1 11 0
	8. Ennistymon - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Feakle - - -	2	—	—	—	2	—	—	—	—	1	0 0 1	0 1 0
	10. Kildysart - - -	—	—	—	—	—	—	—	—	—	—	—	—
	11. Kilkee - - -	—	—	—	—	—	—	—	—	—	—	—	—
	12. Killaloe - - -	5	—	—	—	5	—	—	—	—	5	0 4 6	0 4 0
	13. Kilrush - - -	44	2	—	1	43	—	—	2	—	20	3 7 6	1 0 0
	14. Knock - - -	6	—	—	—	6	—	—	—	—	2	0 3 0	0 2 0
	15. Miltown Malbay -	63		3	—	63	—	—	—	—	23	2 3 0	1 3 0
	16. Newmarket-on-Fergus	2	1	4	—	2	—	—	1	—	6	0 1 11	0 9 0
	17. Quin - - -	40	1	1	11	29	—	—	1	—	2	0 0 7	0 10 0
	18. Six-mile-bridge -	20	2	1	3	17	—	—	2	—	13	1 1 1	0 13 0
	19. Tomgraney - -	—	1	—	—	—	—	—	—	—	1	0 5 0	0 1 0
	20. Tulla - - -	33	2	2	—	33	—	—	2	—	15	7 10 0	0 15 0
	Total for the County Clare - - -	363	11	25	47	314	2	—	10	—	121	29 12 5	6 11 0
Cork - - West Riding.	22 Petty Sessional Districts of the W.R. County, viz.:—												
	1. Ballinspittle - -	1	—	1	1	—	—	—	—	—	1	0 1 0	0 2 0
	2. Ballydehob - -	3	—	—	—	3	—	—	—	—	3	0 0 4½	0 3 0
	3. Ballyvourney - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Bandon - - -	—	—	1	—	—	—	—	—	—	—	—	—
	5. Bantry - - -	2	17	5	—	2	—	—	17	—	5	1 7 0	0 5 0
	6. Carrigboy - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Castletown - -	—	—	—	—	—	—	—	—	—	—	—	—
	8. Clonakilty - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Dromoleaghue - -	—	6	—	—	—	—	—	6	—	3	0 4 6	0 3 0
	10. Dunmanway Town -	2	1	—	—	2	—	—	1	—	3	1 2 6	0 2 0
	11. Do. Petty Sessional District.	11	—	—	—	—	—	—	—	—	3	0 15 6	0 4 6
	12. Goleen - - -	11	—	—	11	—	—	—	—	—	1	1 0 0	0 1 0
	13. Innishannon - -	5	24	1	—	5	—	—	24	—	12	0 12 6	0 12 6
	14. Macroon - - -	19	34	12	—	19	—	—	34	—	14	0 9 0	0 14 0

* Not stated in Return.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.			Amount of Costs.		
					Weights.			Measures.									
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£	s.	d.	£	s.	d.
Cork - - West Riding —*cont.*	15. Millstreet - - -	2	11	7	—	2	—	—	11		16	0	13	6	0	16	0
	16. Reinmeen - -	—	2	—	—	11	—	*	—	—	1	0	2	6	0	1	0
	17. Rosscarberry - -	—	—	—	—	—	—	—	—	—	—	—			—		
	18. Shandangan - -	1	—	—	1	—	—	—	—	—	—	—			—		
	19. Skibbereen - -	20	—	9	6	14	—	—	—	—	15	8	18	6	0	16	0
	20. Skull - - -	12	—	1	—	12	—	—	—	—	9	0	8	6	0	8	0
	21. Timoleague - -	—	16	3	—	—	—	—	16	—	4	0	6	9	0	4	0
	22. Union Hall - -	13	—	—	1	12	—	—	—	—	3	0	6	0	0	3	0
	Total for W.R. County Cork - - -	102	111	40	20	82	—	—	109	—	93	16	8	1½	4	15	0
Cork - - East Riding.	33 Petty Sessional Districts, &c., East Riding, viz.:—																
	1. Ahadalane - -	1	12	—	—	1	—	—	12	—	8	0	2	0	0	8	0
	2. Ballymartle - -	3	13	—	—	3	—	—	13	—	6	0	3	0	0	6	0
	3. Blarney - - -	3	10	1	—	3	—	—	10	—	8	0	12	6	0	8	0
	4. Buttevant - -	34*	26†	10	—	—	—	—	—	—	14	1	3	6	0	14	0
	5. Carrigaline - -	4*	—	2	—	—	4	—	—	—	4	0	8	0	0	4	0
	6. Castlemartyr - -	13	5	—	1	12	—	—	5	—	10	0	3	2	0	10	0
	7. Castletownroche -	4*	—	1	—	—	—	—	—	—	1	2	0	0	0	1	6
	8. Cecilstown - -	35	—	—	11	24	—	—	—	—	5	0	7	1	0	7	0
	9. Charleville - -	8*	—	—	—	—	—	—	—	—	2	0	2	0	0	2	0
	10. Cloyne - - -	46	14	3	6	15	25	—	2	12	14	1	15	6	0	13	0
	11. Coachford - -	4	—	—	1	3	—	—	—	—	2	0	3	0	0	2	0
	12. Cork, City of - -	244	72	10	2	242	—	—	72	—	53	9	13	6	2	14	6
	Do. - -	182	34	—	18	154	10	13	21	—	32	2	8	10	1	15	0
	Do. - -	35	12	—	4	31	—	4	8	—	13	2	2	0	0	13	0
	13. Conna - - -	7	26	1	—	7	—	—	26	—	9	0	0	9	1	5	0
	14. Doneraile - -	—	—	—	—	—	—	—	—	—	—	—			—		
	15. Douglas - - -	17	97	4	2	9	6	—	11	86	19	2	0	5	1	0	6
	16. Farran - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	17. Fermoy - - -	36	84	—	10	16	10	15	28	41	23	1	17	0	1	14	0
	18. Kanturk - - -	16	2	—	1	15	—	1	1	—	9	0	5	5	0	9	0
	19. Kildorrery - -	42	6	1	—	42	—	—	4	2	8	1	10	0	0	8	0
	20. Kinsale, Borough -	79	5	2	3	72	4	—	5	—	37	1	17	3	1	15	0
	21. Knockagree - -	16	—	—	—	16	—	—	—	—	3	0	3	7	0	3	0
	22. Liscarroll - -	—	—	—	—	—	—	—	—	—	—	—			—		
	23. Lisheens - - -	4	3	—	—	4	—	—	3	—	7	5	1	6	0	7	0
	24. Mallow - - -	20	40	—	—	18	2	—	23	17	23	0	8	6	1	4	0
	25. Midleton - - -	57	11†	—	—	41	16	—	—	—	11	0	13	7	0	12	6
	26. Mitchelstown - -	10	22	16	—	10	—	—	10	12	26	9	19	6	1	6	0
	27. Newmarket - -	3	9	—	—	3	—	—	9	—	4	0	13	6	0	3	0
	28. Passage West - -	75*	31†	2	—	—	—	—	—	—	28	1	2	7	1	8	6
	29. Queenstown - -	80	50	3	34	20	16	50	—	—	41	2	8	0	2	3	0
	30. Rathcormack - -	21	14	—	—	21	—	—	14	—	24	0	8	3	2	1	0
	31. Riverstown - -	20	37	1	1	12	7	2	13	22	9	0	5	7	0	17	0
	32. Tracton - - -	20	49	—	—	20	—	—	49	—	9	1	0	0	0	9	0
	33. Youghal - - -	89	—	—	—	80	9	—	—	—	21	0	7	2	1	1	0
	Total for E.R. County Cork - - -	1,228	684	57	96	894	409	85	339	192	483	51	7	6	27	4	6
Donegal -	26 Petty Sessional Districts of the County, viz.:—																
	1. Ardara - - -	4	—	4	—	3	1	—	—	—	4	2	5	0	0	6	0
	2. Avanmore - -	—	—	—	—	—	—	—	—	—	—	—			—		
	3. Ballintra - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	4. Ballyshannon - -	72	—	—	3	62	7	—	—	—	14	2	0	0	0	15	0
	5. Buncrana - - -	9	2	—	—	9	—	—	2	—	5	0	5	0	0	5	0
	6. Burnfoot - - -	14	—	8	—	14	—	—	8	—	5	1	2	6	0	5	0
	7. Bunbeg - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	8. Carndonagh - -	13	—	5	2	8	3	—	—	—	13	1	2	0	0	13	0
	9. Churchill - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	10. Donegal - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	11. Dungloe - - -	3	—	—	—	3	—	—	—	—	3	0	11	0	0	3	0
	12. Dunfanaghy - -	—	—	—	—	—	—	—	—	—	—	—			—		
	13. Glenties - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	14. Killybegs - -	14	6	5	—	14	—	—	6	—	11	0	13	0	0	11	0
	15. Letterkenny - -	—	—	—	—	—	—	—	—	—	—	—			—		
	16. Lifford - - -	25	13†	3	1	1	—	1	1	—	6	8	17	6	0	7	6
	17. Malin - - -	—*	—	—	—	—	—	—	—	—	—	—			—		
	18. Milford - - -	8	—	—	1	7	—	—	—	—	4	0	7	0	0	13	0
	19. Moville - - -	49	—	5	2	47	—	—	—	—	19	1	0	6	2	2	6
	20. Newton Cunningham	19*	1	2	—	6	—	—	1	—	7	0	7	6	1	12	6
	21. Pettigo - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	22. Ramelton - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	23. Rathmullan - -	—	—	1	—	—	—	—	—	—	1	0	5	0	0	1	6
	24. Raphoe - - -	71*	9†	1	—	11	9	—	1	3	25	0	12	6	0	17	0

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£ s. d.	£ s. d.
Donegal—*cont.*	25. Stranorlar	53	1	1	2	20	31	—	—	1	29	2 6 1	2 7 0
	26. Tamney	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Donegal	354	32	34	11	205	51	1	19	4	146	21 14 7	10 19 0
Down	26 Petty Sessional Districts of the County, viz.:—												
	1. Ardglass and Killough	15	—	—	2	12	1	—	—	—	9	1 5 0	0 9 0
	2. Ballynahinch, Sub-District of Killinch.	2	—	—	2	—	—	—	—	—	2	0 5 0	0 2 0
	3. Ballynahinch, Petty Sessional Division.	39	—	—	1	38	—	—	—	—	17	3 1 6	0 18 0
	4. Banbridge	—	—	—	—	—	—	—	—	—	—	—	—
	5. Bangor	101	—	19	1	100	—	—	—	—	37	30 15 0	1 17 0
	6. Castlewellan	3	—	4	—	3	—	—	—	—	2	10 0 0	0 2 0
	7. Donaghadee	—	—	—	—	—	—	—	—	—	—	—	—
	8. Downpatrick	—	—	—	—	—	—	—	—	—	—	—	—
	9. Dromara	19	—	3	2	17	—	3	33	—	5	0 14 0	0 5 0
	10. Dromore	30	—	4	10	16	4	—	—	—	11	1 16 0	0 13 6
	11. Gilford	51	1	6	—	51	—	—	1	—	17	2 0 6	0 17 0
	12. Greyabbey	5	—	6	—	5	—	—	—	—	8	6 1 0	0 8 0
	13. Hillsboro'	20*	—	3	—	2	—	—	—	—	4	3 2 6	0 4 0
	14. Kilkeel	—	—	—	—	—	—	—	—	—	—	—	—
	Killough. *See* Ardglass.												
	15. Killyleagh	25	—	—	—	25	—	—	—	—	10	1 17 0	0 10 0
	16. Moira	8*	—	1	—	2	—	—	—	—	3	0 3 0	0 3 0
	17. Newry†	—	—	—	—	—	—	—	—	—	—	—	—
	18. Newtonbreda	—	—	—	—	—	—	—	—	—	—	—	—
	19. Newtonards	48	—	18	—	48	—	—	—	—	40	3 10 0	2 0 0
	20. Newtonards Sub-District of Holywood.	10	—	—	—	10	—	—	—	—	6	0 3 6	0 6 0
	21. Portaferry	—	—	—	—	—	—	—	—	—	—	—	—
	22. Rathfriland	66	—	1	—	66	—	—	—	—	21	1 3 1	1 11 6
	23. Saintfeld	6	—	1	—	—	—	—	—	—	3	0 1 6	0 3 0
	24. Seaford	—	—	—	—	—	—	—	—	—	—	—	—
	25. Warrenpoint	—	—	—	—	—	—	—	—	—	—	—	—
	26. Waringstown	5*	—	3	2	—	—	—	—	—	5	2 7 0	0 5 0
	Total for County Down	453	1	70	20	395	5	3	34	—	200	33 10 7	7 12 0
Dublin	Dublin, City of	—	—	—	—	—	—	—	—	—	11	2 8 6	1 5 0
	11 Petty Sessional Districts of the County, viz.:—												
	1. Balbriggan	153	—	—	—	153	—	—	—	—	34	20 12 0	1 15 0
	2. Blanchardstown	6	—	—	—	6	—	—	—	—	6	7 17 6	0 6 6
	3. Cabinteely	—	—	—	—	—	—	—	—	—	—	—	—
	4. Drumcondra	57	11	3	1	28	14	—	3	8	17	0 5 0	0 15 0
	5. Lucan	46	8	4	5	11	30	—	—	—	—	—	—
	6. Newcastle	—	—	—	—	—	—	—	—	—	—	—	—
	7. Raheny	—	—	—	—	—	—	—	—	—	—	—	—
	8. Rathfarnham	—	—	—	—	—	—	—	—	—	—	—	—
	9. Swords	—	—	—	—	—	—	—	—	—	—	—	—
	10. Tallaght	—	—	—	—	—	—	—	—	—	—	—	—
	11. Name of District not stated.	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Dublin	262	19	7	6	198	44	—	3	8	68	28 14 6	2 16 6
Fermanagh	13 Petty Sessional Districts of the County, viz.:—												
	1. Belleek	14	—	—	—	13	1	—	—	—	5	0 3 7½	0 5 0
	2. Brookborough	—	—	—	—	—	—	—	—	—	—	—	—
	3. Derrygonnelly	7	—	—	—	7	—	—	—	—	1	0 1 0	0 1 0
	4. Derrylin	5*	—	1	—	—	—	—	—	—	3	0 6 0	0 3 0
	5. Enniskillen	9	—	—	—	9	—	—	—	—	3	1 5 0	0 3 6
	6. Irvinestown	—	—	—	—	—	—	—	—	—	—	—	—
	7. Kesh	—	—	—	—	—	—	—	—	—	—	—	—
	8. Lack	12	—	—	1	11	—	—	—	—	6	0 1 0	0 6 0
	9. Letterbreen	—	—	—	—	—	—	—	—	—	—	—	—
	10. Lisbellaw	3*	—	1	—	—	—	—	—	—	2	3 10 0	0 2 0
	11. Lisnaskea	—	—	—	—	—	—	—	—	—	—	—	—
	12. Newtonbutler	—	—	—	—	—	—	—	—	—	—	—	—
	13. Rosslea	14	—	8	—	14	—	—	1	—	11	5 2 6	0 11 0
	Total for County Fermanagh	64	1	10	1	54	1	—	1	—	21	11 5 1½	1 11 6

* Not stated in Return whether too heavy or too light.

† No Inspection this year.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.			Amount of Costs.		
					Weights.			Measures.									
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£	s.	d.	£	s.	d.
Galway - West Riding.	23 Petty Sessional Districts of the W.R. County, viz.:—																
	1. Ardrahan - -	—	—	—	—	—	—	—	—	—	—	—			—		
	2. Arran - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	3. Ballymoe - - -	10	—	1	—	10	—	—	—	—	1	0	0	1	0	1	0
	4. Carna - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	5. Castletown - -	—	—	—	—	—	—	—	—	—	—	—			—		
	6. Clifden - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	7. Clonbur - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	8. Derreen - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	9. Dunmore - -	—	—	—	—	—	—	—	—	—	—	—			—		
	10. Galway Town - -	—	—	—	—	—	—	—	—	—	—	—			—		
	11. Galway Petty Sess. -	56	—	—	—	56	—	—	—	—	26	2	2	7	1	19	0
	12. Gort - - -	6	—	—	—	6	—	—	—	—	2	0	4	0	0	2	0
	13. Headford - - -	—	—	4	—	—	—	—	—	—	4	2	0	0	0	4	0
	14. Kinvarra - - -	8	—	—	—	8	—	—	—	—	6	0	1	6	0	6	0
	15. Letterfrack - -	—	—	—	—	—	—	—	—	—	—	—			—		
	16. Maam - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	17. Milltown - - -	8	4	—	—	8	—	—	4	—	2	1	1	0	0	2	0
	18. Oranmore - -	—	—	—	—	—	—	—	—	—	—	—			—		
	19. Oughterard - -	14	—	—	1	10	3	—	—	—	4	0	4	0	0	4	0
	20. Roundstone - -	—	—	—	—	—	—	—	—	—	—	—			—		
	21. Spiddle - - -	—	—	—	—	—	—	—	—	—	—	—			—		
	22. Tuam - - -	35	—	—	10	15	10	—	—	—	15	2	2	3	0	15	0
	23. Williamstown - -	7	—	—	—	7	—	—	—	—	4	0	2	0	0	4	0
	Total for the W.R. County Galway -	144	4	5	11	120	13	—	4	—	64	7	17	5	3	17	0
Galway - East Riding.	14 Petty Sessional Districts of the E.R. County, viz.:—																
	1. Athenry - - -	7	1	—	—	7	—	—	1	—	3	0	16	0		—	
	2. Ahaseragh - -	—	—	—	—	—	—	—	—	—	—		—			—	
	3. Ballinamore - -	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Ballinasloe - -	91	25	11	42	21	28	3	5	17	28	15	17	2	1	18	0
	5. Ballygar - - -	44	18	8	2	16	26	—	1	17	13	3	16	6	0	13	0
	6. Eyrecourt - -	—	—	—	—	—	—	—	—	—	—		—			—	
	7. Gurteen - - -	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Killimore - - -	18	—	3	—	17	1	—	—	—	5	0	12	6	0	5	0
	9. Laurencetown - -	—	—	—	—	—	—	—	—	—	—		—			—	
	10. Loughrea - - -	31	2	3	6	25	—	—	—	2	10	1	11	6	0	10	0
	11. Marblehill - -	—	—	—	—	—	—	—	—	—	9	0	6	9	0	8	6
	12. Mountbellewbridge -	65*	4	4	4	24	33	1	3	—	11	1	1	1	0	11	0
	13. Mountshannon - -	—	—	—	—	—	—	—	—	—	—		—			—	
	14. Portumna - -	4	—	1	—	—	4	—	—	—	1	0	15	0	0	1	0
	Total for the E.R. County Galway -	260	50	30	54	110	92	4	10	36	90	24	0	6	4	6	6
Kerry - -	23 Petty Sessional Districts of the County, viz.:—																
	1. Annascaul - -	—	—	—	—	—	—	—	—	—	—		—			—	
	2. Ballylongford - -	—	—	—	—	—	—	—	—	—	—		—			—	
	3. Cahirciveen - -	39	22	2	3	32	4	—	11	11	23	0	11	3	1	6	6
	4. Cahirdaniel - -	—	—	—	—	—	—	—	—	—	—		—			—	
	5. Castleisland - -	—	—	—	—	—	—	—	—	—	15	1	10	6	0	15	0
	6. Causeway - -	—	—	—	—	—	—	—	—	—	—		—			—	
	7. Coolmagort - -	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Castlegregory - -	—	—	—	—	—	—	—	—	—	7	0	19	6	0	7	0
	9. Dingle - - -	19	—	1	—	19	—	—	—	1	—		—			—	
	10. Gunsboro' - -	—	—	—	—	—	—	—	—	—	—		—			—	
	11. Kenmare - - -	6	—	3	—	6	—	—	—	—	5	0	15	0	0	5	0
	12. Killarney - - -	—	—	—	—	—	—	—	—	—	4	0	6	8	0	4	0
	13. Killorglin - - -	34	5	—	1	33	—	—	—	5	16	4	5	0	0	18	0
	14. Kilpadder - -	—	—	—	—	—	—	—	—	—	—		—			—	
	15. Listowell - - -	7	—	—	—	4	3	—	—	—	5	0	7	0	0	5	0
	16. Miltown - - -	7*	—	—	—	—	—	—	—	—	2	0	1	0	0	2	0
	17. Portmagee - -	—	—	—	—	—	—	—	—	—	—		—			—	
	18. Sneem - - -	—	—	—	—	—	—	—	—	—	—		—			—	
	19. Tarbert - - -	3*	—	1	—	1	—	—	—	—	2	0	5	3	0	2	0
	20. Tralee - - -	79*	109†	4	4	66	—	—	—	89	46	6	1	6	1	17	6
	21. Valentia - -	—	—	—	—	—	—	—	—	—	—		—			—	
	22. Waterville - -	—	—	—	—	—	—	—	—	—	—		—			—	
	23. Not stated (the Inspector being absent).				—	—	—	—	—	—	—		—			—	
	Total for County Kerry - -	194	136	11	8	161	7	—	11	106	125	15	2	8	6	2	0

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£ s. d.	£ s. d.
KILDARE -	14 Petty Sessional Districts of the County, viz.:—												
	1. Athy - - -	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballymore - -	—	—	—	—	—	—	—	—	—	—	—	—
	3. Carberry - - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Castledermot - -	—	—	—	—	—	—	—	—	—	—	—	—
	5. Celbridge - -	—	—	—	—	—	—	—	—	—	—	—	—
	6. Clane - - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Donadea - - -	—	—	—	—	—	—	—	—	—	—	—	—
	8. Kilcullen - - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Kildare - - -	32	13	—	3	29	—	—	13	—	11	2 9 6	1 11 0
	10. Kilmeaghue - -	—	—	—	—	—	—	—	—	—	—	—	—
	11. Monasterevan - -	—	-	—	—	—	—	—	—	—	—	—	—
	12. Naas - - -	—	—	—	—	—	—	—	—	—	—	—	—
	13. Newbridge - -	9	5	2	—	9	—	—	5	—	7	2 4 1	0 14 6
	14. Rathangan - -	—	—	1	—	—	—	—	—	—	1	0 2 6	0 1 0
	Total for the County Kildare - -	41	18	5	3	38	—	—	18	—	19	4 15 7	2 6 6
KILKENNY -	17 Petty Sessional Districts of the County, viz.:—												
	1. Ballyragget - -	46	—	—	2	44	—	—	—	—	12	2 10 8	0 12 0
	2. Callan - - -	3*	1	1	—	2	—	—	—	1	3	0 6 0	0 3 0
	3. Castlecomer - -	—	—	7	3	—	—	—	—	—	10	0 7 7	0 10 0
	4. Dunmore - - -	12*	4†	1	—	—	—	—	—	—	—	Not stated.	
	5. Freshford - - -	—	—	—	—	—	—	—	—	—	—	—	—
	6. Gowran - - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Goresbridge - -	—	—	—	—	—	—	—	—	—	—	—	—
	8. Graigue - - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Johnstown - -	27	4	2	6	21	—	—	4	—	16	1 17 0	0 16 0
	10. Kilkenny City - -	7	—	1	—	7	—	—	—	—	3	0 3 0	0 3 0
	11. Kilmacow - -	1	4	—	—	1	—	—	4	—	4	0 4 6	0 4 6
	12. Kilmaganny - -	18	1	—	—	16	2	—	1	—	1	0 1 0	0 7 0
	13. Kilmanagh - -	—	—	—	—	—	—	—	—	—	—	—	—
	14. Pilltown - - -	2	—	—	—	2	—	—	—	—	1	0 5 0	0 1 0
	15. Rosbercon - -	—	—	—	—	—	—	—	—	—	—	—	—
	16. Stoneyford - -	6*	1	3	—	3	—	—	1	1	7	1 2 6	0 7 0
	17. Thomastown - -	14*	—	2	—	10	—	—	—	—	10	6 12 6	1 10 0
	Total for County Kilkenny - -	136	15	17	11	106	2	—	10	1	67	13 9 9	4 13 6
KING'S COUNTY	16 Petty Sessional Districts of the County, viz.:—												
	1. Ballycumber - -	—	—	—	—	—	—	—	—	—	—	—	—
	2. Bannagher - -	—	—	—	—	—	—	—	—	—	—	—	—
	3. Clara - - -	—	—	—	—	—	—	—	—	—	—	—	—
	4. Clonegowan - -	3	3	5	—	3	—	—	3	—	5	0 3 6	0 5 0
	5. Edenderry - -	—	—	—	—	—	—	—	—	—	—	—	—
	6. Fahy - - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Ferbane - - -	5	—	—	1	4	—	—	—	—	1	0 2 6	0 1 0
	8. Frankford - -	3	—	—	—	3	—	—	—	—	1	0 5 0	0 1 0
	9. Kinnitty - - -	9	9	2	1	8	—	1	8	—	3	2 5 0	0 3 0
	10. Moneygall - -	16	—	—	13	2	—	—	—	—	6	0 6 0	0 9 0
	11. Moystown - -	26	3	5	3	19	4	—	1	2	6	0 12 0	0 6 0
	12. Parsonstown - -	—	—	—	—	—	—	—	—	—	—	—	—
	13. Philipstown - -	26	—	1	—	25	—	—	—	—	16	0 9 6	0 16 0
	14. Shinrone - - -	—	—	—	—	—	—	—	—	—	—	—	—
	15. Thomastown - -	—	—	—	—	—	—	—	—	—	—	—	—
	16. Tullamore - -	—	—	—	—	—	—	—	—	—	—	—	—
	Total for King's County - -	87	15	13	18	64	4	1	12	2	38	4 2 6	2 1 0
LEITRIM -	13 Petty Sessional Districts of the County, viz.:—												
	1. Ballinamore - -	—	—	—	—	—	—	—	—	—	—	—	—
	2. Carrick-on-Shannon -	—	—	—	—	—	—	—	—	—	—	—	—
	3. Carrigallen - - Cashcarrigan. *See* Kishcarrigan.	—	—	—	—	—	—	—	—	—	—	—	—
	4. Cloone - - -	—	—	—	—	—	—	—	—	—	—	—	—
	5. Dromahaire - -	7	—	—	—	7	—	—	—	—	3	2 0 0	0 3 0
	6. Dromod - - -	—	—	—	—	—	—	—	—	—	—	—	—
	7. Drumkeeran - -	15	—	6	—	15	—	—	—	—	13	0 12 0	0 13 0
	8. Drumsna - - -	—	—	—	—	—	—	—	—	—	—	—	—
	9. Drumshambo - -	33	1	11	1	32	—	—	1	—	24	11 10 6	1 4 0

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.			Amount of Costs.		
					Weights.			Measures.									
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£	s.	d.	£	s.	d.
LEITRIM—*cont.*	10. Kinlough	44*	—	2	—	—	—	—	—	—	12	1	0	6	0	12	0
	11. Kishcarrigan	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	12. Manorhamilton	17	—	—	—	17	—	—	—	—	4	0	5	0	0	4	0
	13. Mohill	5	—	1	—	5	—	—	—	—	3	0	1	6	0	3	0
	Total for County Leitrim	121	1	20	1	76	—	—	1	—	59	15	9	6	2	19	0
LIMERICK	22 Petty Sessional Districts of the County, including the City of Limerick, viz.:—																
	1. Adare	1	—	—	—	—	—	—	1	—	1	0	1	6	0	1	0
	Do.	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	2. Abbeyfeale	29*	1	2	—	—	—	—	—	—	13	0	8	10	0	13	0
	3. Askeaton	7	—	—	3	4	—	—	—	—	7	0	0	7	0	7	0
	4. Ballingarry	6	—	—	—	6	—	—	—	—	3	0	0	3	0	3	0
	5. Ballyneety	1	1	—	—	1	—	2	—	—	1	0	0	6	0	1	0
	6. Bruree	6	1	—	2	4	—	—	1	—	3	0	15	1	0	5	6
	7. Bruff	11*	—	—	—	6	—	—	—	—	6	0	7	6	0	6	0
	8. Castleconnel	11	—	—	—	11	—	—	—	—	8	1	12	0	0	8	0
	9. Croom	5	—	—	—	5	—	—	—	—	1	0	1	0	0	1	0
	10. Foynes	9	—	—	2	7	—	—	—	—	7	0	7	3	0	7	6
	11. Galbally	7	—	—	1	6	—	—	—	—	1	0	0	1	0	1	0
	12. Glin	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	13. Hospital	3	—	1	—	3	—	—	—	—	2	0	0	6	0	2	0
	14. Kilfinane	2	—	1	—	2	—	—	—	—	3	0	4	0	0	3	0
	15. Kilmallock	10	2	—	—	10	—	—	2	—	3	0	5	0	0	5	0
	16. Limerick City	102	—	6	—	102	—	—	—	—	31	1	14	3	1	11	0
	17. Do. Petty Sessions	—	22	—	—	—	—	2	20	—	15	0	11	9	0	15	0
	18. Murroe	8	1	—	—	8	—	—	1	—	5	0	15	0	0	5	0
	19. Newcastle	3*	1	—	—	—	—	—	—	—	1	0	1	0	0	1	0
	20. Newpallas	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	21. Rathkeale	9	—	—	—	9	—	—	—	—	3	0	7	6	0	3	0
	22. Patrickswell	—	1	—	—	—	—	—	1	—	1	0	10	0	0	1	0
	Total for County Limerick	230	31	10	8	184	—	4	26	—	115	8	3	7	6	0	0
LONDONDERRY	15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—																
	1. Bellaghy	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	2. Claudy	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	3. Coleraine	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	4. Draper's Town	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	5. Dungiven	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	6. Eglington	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	7. Garvagh	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	8. Innisrush	(No account kept.)			—	—	—	—	—	—	9	3	15	0	0	9	0
	9. Kilrea	11	1	—	—	11	—	—	1	—	3	1	3	6	0	3	0
	10. Londonderry City	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	11. Do. Petty Sessions	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	12. Maghera	(No account kept.)			—	—	—	—	—	—	16	2	11	6	0	17	6
	13. Magherafelt	30	—	1	—	30	—	—	—	—	3	0	4	6	0	3	0
	14. Moneymore	11	—	1	—	11	—	—	—	—	4	0	18	6	0	4	6
	15. Newtownlimavady	8	—	—	—	8	—	—	—	—	1	1	0	0	0	1	0
	Total for County Londonderry	60	1	2	—	60	—	—	1	—	36	9	13	0	1	18	0
LONGFORD	11 Petty Sessional Districts of the County, viz.:—																
	1. Ballynamuck	31	3†	7	4	27	—	—	—	2	6	1	8	6	0	6	0
	2. Ballinalee	4	3	—	—	4	—	—	3	—	4	0	8	6	0	4	0
	3. Ballymahon	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	4. Carrickboy	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	5. Drumlish	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	6. Edgeworthstown	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	7. Granard	74	2	3	3	71	—	—	2	—	25	4	13	0	1	5	0
	8. Kenagh	—	—	—	—	—	—	—	—	—	—	—	—		—	—	
	9. Lanesboro'	1*	—	—	—	—	—	—	—	—	1	1	0	0	0	1	0
	10. Longford Town	30	4	4	6	24	—	—	4	—	13	4	13	6	0	13	0
	11. Newtownforbes	15	—	—	—	15	—	—	—	—	10	0	14	2	0	10	0
	Total for County Longford	155	12	4	13	141	—	—	9	2	59	12	17	8	2	19	0

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.			Amount of Costs.		
					Weights.			Measures.									
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£	s.	d.	£	s.	d.
Louth	10 Petty Sessional Districts of the County, viz.:—																
	1. Ardee	43	6	2	3	40	—	—	4	—	19	7	9	6	1	0	0
	2. Carlingford	28	1	3	3	28	—	—	1	—	11	2	15	0	0	13	0
	3. Castlebellingham	119	32	8	—	18	101	—	16	16	28	5	13	0	1	8	0
	4. Collon	22	—	1	4	18	—	—	—	—	7	2	10	0	0	7	0
	5. Dundalk	25	—	—	—	25	—	—	—	—	10	0	9	6	0	10	0
	6. Dunleer	—	—	—	—	—	—	—	—	—	—		—			—	
	7. Louth	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Mell	—	—	—	—	—	—	—	—	—	—		—			—	
	9. Ravensdale	—	—	—	—	—	—	—	—	—	—		—			—	
	10. Termonfeckin	10	1	—	—	10	—	—	1	—	1	0	4	6	0	9	0
	Total for County Louth	237	40	14	10	139	101	—	22	16	76	19	1	6	4	7	0
Mayo	24 Petty Sessional Districts of the County viz.:—																
	1. Achill	—	—	—	—	—	—	—	—	—	—		—			—	
	2. Balla	—	—	—	—	—	—	—	—	—	—		—			—	
	3. Ballaghadereen	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Ballina	—	—	—	—	—	—	—	—	—	—		—			—	
	5. Ballindine	—	—	—	—	—	—	—	—	—	—		—			—	
	6. Ballinrobe	—	14	2	—	—	14	—	—	2	4	0	4	0	0	11	0
	7. Ballycastle	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Ballycroy	—	—	—	—	—	—	—	—	—	—		—			—	
	9. Ballyglass	5	—	—	—	5	—	—	—	—	1	3	0	0	0	1	6
	10. Ballyhaunis	1	—	1	—	1	—	—	—	—	1	0	1	0	0	1	0
	11. Belmullett	43	—	—	4	39	—	—	—	—	12	1	17	6	0	12	0
	12. Castlebar	—	—	—	—	—	—	—	—	—	—		—			—	
	13. Claremorris	—	—	—	—	—	—	—	—	—	—		—			—	
	14. Cong	—	—	—	—	—	—	—	—	—	—		—			—	
	15. Crossmolina	—	—	—	—	—	—	—	—	—	—		—			—	
	16. Foxford	—	—	—	—	—	—	—	—	—	—		—			—	
	17. Hollymount	12	5	1	—	12	—	—	5	—	6	1	6	0	0	6	6
	18. Killihane	—	—	—	—	—	—	—	—	—	—		—			—	
	19. Killala	—	—	—	—	—	—	—	—	—	—		—			—	
	20. Kilmain	—	—	—	—	—	—	—	—	—	—		—			—	
	21. Louisburgh	—	—	—	—	—	—	—	—	—	—		—			—	
	22. Lowpark	31	9	13	—	31	—	—	—	9	15	4	14	1	0	15	6
	23. Swinford	—	—	—	—	—	—	—	—	—	—		—			—	
	24. Westport	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for County Mayo	92	28	17	4	88	14	—	5	11	39	11	2	7	2	7	6
Meath, West.	*See* Westmeath.																
Meath	18 Petty Sessional Districts of the County, including the Town and County of Drogheda, viz.:—																
	1. Athboy	3	—	1	—	3	—	—	—	—	1	0	10	0	0	1	0
	2. Ballyvor	7	1†	3	4	3	—	—	—	—	9	0	9	0	0	9	0
	3. Crossakiel	9	1	3	—	9	—	—	1	—	2	1	0	0	0	2	0
	4. Drogheda, Town	—	—	—	—	—	—	—	—	—	—		—			—	
	5. Drumconrath	3	—	—	—	3	—	—	—	—	3	0	3	0	0	3	0
	6. Duleek	—	—	—	—	—	—	—	—	—	—		—			—	
	7. Dunboyne	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Dunshaughlin	—	—	—	—	—	—	—	—	—	—		—			—	
	9. George's Cross	—	—	—	—	—	—	—	—	—	—		—			—	
	10. Julianstown	—	—	—	—	—	—	—	—	—	—		—			—	
	11. Kells	—	—	—	—	—	—	—	—	—	—		—			—	
	12. Longwood	—	—	—	—	—	—	—	—	—	—		—			—	
	13. Moynalty	—	—	—	—	—	—	—	—	—	—		—			—	
	14. Navan	—	—	—	—	—	—	—	—	—	—		—			—	
	15. Oldcastle	—	—	—	—	—	—	—	—	—	—		—			—	
	16. Slaone	—	—	—	—	—	—	—	—	—	—		—			—	
	17. Summerhill	—	—	—	—	—	—	—	—	—	—		—			—	
	18. Trim	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for County Meath	22	2	7	4	18	—	—	1	—	15	2	2	0	0	15	0
Monaghan	8 Petty Sessional Districts of the County, viz.:—																
	1. Ballybay	1*	—	—	—	—	—	—	—	—	1	0	1	0	0	1	0
	2. Carrickmacross	—	—	—	—	—	—	—	—	—	—		—			—	

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.			Amount of Costs.		
					Weights.			Measures.									
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£	s.	d.	£	s.	d.
Monaghan—*cont.*	3. Castleblayney	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Clones	—	—	—	—	—	—	—	—	—	—		—			—	
	5. Emyvale	—	—	—	—	—	—	—	—	—	—		—			—	
	6. Monaghan	9	—	—	2	7	—	—	—	—	2	0	5	0	0	5	0
	7. Newbliss	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Rockcorry	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for County Monaghan	10	—	—	2	7	—	—	—	—	3	0	6	0	0	6	0
Queen's County.	15 Petty Sessional Districts of the County, viz.:—																
	1. Abbeyleix	—	—	—	—	—	—	—	—	—	—		—			—	
	2. Ballacolla	—	—	—	—	—	—	—	—	—	—		—			—	
	3. Ballybrittas	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Ballylinan	—	4	2	—	—	—	1	1	2	4	1	3	6	0	4	0
	5. Borris-in-Ossory	14	—	5	3	11	—	—	—	—	8	1	2	7	0	9	0
	6. Castletown and Coolrain.	7	—	—	—	7	—	—	—	—	2	1	5	0	0	2	0
	7. Carlow-Graigue	33	18	7	3	21	9	—	4	14	14	3	0	2	0	15	0
	8. Durrow	20	5	6	4	16	—	—	—	5	11	0	14	1	0	11	0
	9. Maryboro'	—	—	—	—	—	—	—	—	—	—		—			—	
	10. Mountmellick	7	—	—	—	7	—	—	—	—	1	1	0	0	0	1	0
	11. Mountrath	8	2	2	—	8	—	—	2	—	6	2	18	6	0	7	0
	12. Portarlington	—	3	—	—	—	—	—	—	3	1	0	1	0	0	2	0
	13. Rathdowney	12	1	1	—	12	—	—	1	—	11	1	8	6	0	11	0
	14. Stradbally	11	—	—	1	10	—	—	—	—	8	0	5	1	0	9	0
	15. Timahoe	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for Queen's County	112	33	23	11	92	9	1	8	24	66	12	18	5	3	11	0
Roscommon	22 Petty Sessional Districts of the County, viz.:—																
	1. Athlone	117	48	9	7	110	—	—	18	30	40	8	7	4	3	0	0
	2. Ballinasloe	10	—	—	—	10	—	—	—	—	6	0	15	7	0	6	0
	3. Ballintobber	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Ballinlough	1	—	2	—	1	—	—	—	—	2	0	5	0	0	2	0
	5. Ballyfarnon	28	—	—	13	15	—	—	—	—	1	0	2	6	0	1	0
	6. Ballyforan	—	—	—	—	—	—	—	—	—	—		—			—	
	7. Belanagare	1	—	—	—	1	—	—	—	—	1	0	2	6	0	1	0
	8. Boyle	—	—	—	—	—	—	—	—	—	—		—			—	
	9. Brideswell	4	—	—	—	4	—	—	—	—	2	0	11	0	0	2	0
	10. Castlerea	6	—	—	—	6	—	—	—	—	2	0	6	0	0	2	0
	11. Coolderry	7	—	—	1	6	—	—	—	—	2	0	3	0	0	2	0
	12. Cootehall	—	—	—	—	—	—	—	—	—	—		—			—	
	13. Croghan	—	—	—	—	—	—	—	—	—	—		—			—	
	14. Elphin	4	—	1	—	4	—	—	—	—	1	0	0	6	0	1	0
	15. Frenchpark	37	—	4	—	37	—	—	—	—	5	2	5	0	0	5	0
	16. Keadue	—	—	—	—	—	—	—	—	—	—		—			—	
	17. Kilmore	—	—	—	—	—	—	—	—	—	—		—			—	
	18. Lecarrow	—	—	1	—	—	—	—	—	—	1	1	0	0	0	1	6
	19. Roscommon	9*	5	—	4	—	—	4	1	—	5	1	7	6	0	5	0
	20. Ruskey	6	—	—	—	6	—	—	—	—	2	0	1	0	0	2	0
	21. Strokestown	—	—	—	—	—	—	—	—	—	—		—			—	
	22. Tulsk	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for County Roscommon	230	53	17	25	200	—	4	19	30	70	15	6	11	4	10	6
Sligo	14 Petty Sessional Districts of the County, viz.:—																
	1. Ardnaree	—	—	—	—	—	—	—	—	—	—		—			—	
	2. Ballinafad	—	—	—	—	—	—	—	—	—	—		—			—	
	3. Ballymofe	—	—	—	—	—	—	—	—	—	—		—			—	
	4. Collooney	—	—	—	—	—	—	—	—	—	—		—			—	
	5. Coolaney	—	—	—	—	—	—	—	—	—	—		—			—	
	6. Dromore	3	—	—	—	—	3	—	—	—	2	0	2	0	0	2	0
	7. Enniscrone	—	—	—	—	—	—	—	—	—	—		—			—	
	8. Grange	10	6	6	1	9	—	—	—	6	22	3	15	6	1	2	0
	9. Mullaghroe	1	—	4	—	—	1	—	—	—	5	0	5	4	0	5	0
	10. Riverstown	—	—	—	—	—	—	—	—	—	—		—			—	
	11. Skreen	15	—	2	5	5	5	—	—	—	4	0	5	0	0	4	0
	12. Sligo	157	14	10	—	—	157	—	—	14	42	6	6	6	2	2	0
	13. Sooey	—	—	—	—	—	—	—	—	—	—		—			—	
	14. Tobercurry	—	—	—	—	—	—	—	—	—	—		—			—	
	Total for the County Sligo	186	20	22	6	14	166	—	—	20	75	10	14	4	3	15	0

* Not stated in Return whether too heavy or too light.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.		£ s. d.	£ s. d.
Tipperary - North Riding.	9 Petty Sessional Districts of the County, viz.:—												
	1. Borrisokane	—	—	—	—	—	—	—	—	—	—	—	—
	2. Borrisoleigh	10	—	—	2	8	—	—	—	—	4	0 4 6	0 6 0
	3. Cloughjordan	—	—	—	—	—	—	—	—	—	—	—	—
	4. Lorrha	—	—	—	—	—	—	—	—	—	—	—	—
	5. Nenagh	—	—	—	—	—	—	—	—	—	—	—	—
	6. Newport	6	—	—	—	6	—	—	—	—	2	0 3 6	0 2 0
	7. Roscrea	—	—	—	—	—	—	—	—	—	—	—	—
	8. Templemore	14	—	—	—	14	—	—	—	—	3	0 2 0	0 3 0
	9. Thurles	5	1	—	—	5	—	—	—	1	2	0 3 6	0 1 6
	Total for N.R. County Tipperary	35	1	—	2	33	—	—	—	1	11	0 13 6	0 12 6
Tipperary - South Riding.	16 Petty Sessional Districts of the County, viz.:—												
	1. Ardfinan	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballynonty	—	—	1	—	—	—	—	—	—	1	0 1 0	0 1 0
	3. Ballyporeen	5	—	—	—	5	—	—	—	—	3	0 2 0	0 3 0
	4. Bansha	—	—	—	—	—	—	—	—	—	—	—	—
	5. Cahir	—	—	—	—	—	—	—	—	—	—	—	—
	6. Cappawhite	12*	—	—	—	—	—	—	—	—	1	0 1 0	0 3 0
	7. Carrick-on-Suir	—	10	—	—	10	—	—	—	—	7	—	0 7 0
	8. Cashel	—	—	—	—	—	—	—	—	—	—	—	—
	9. Clogheen	22*	18†	2	—	—	—	—	—	—	10	2 2 6	0 10 0
	10. Clonmel	—	—	—	—	—	—	—	—	—	—	—	—
	11. Dundrum	—	—	—	—	—	—	—	—	—	—	—	—
	12. Fethard	47	6	8	6	41	—	1	5	—	25	9 5 8	1 5 0
	13. Golden	5*	—	—	—	—	—	—	—	—		Not stated.	
	14. Mullinahone	39	6	1	1	38	—	6	—	—	13	0 3 6	0 14 0
	15. New Inn	—	—	—	—	—	—	—	—	—	—	—	—
	16. Tipperary	—	—	—	—	—	—	—	—	—	—	—	—
	Total for S.R. County Tipperary	130	40	12	7	94	—	7	5	—	60	11 15 8	3 3 0
Tyrone	20 Petty Sessional Districts of the County, viz.:—												
	1. Aughnacloy	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballygawley	—	—	—	—	—	—	—	—	—	—	—	—
	3. Caledon	—	—	—	—	—	—	—	—	—	—	—	—
	4. Carrickmore	21	5	12	—	21	—	—	5	—	14	1 15 6	0 14 0
	5. Castlederg	—	—	—	—	—	—	—	—	—	—	—	—
	6. Clogher	7	—	—	2	5	—	—	—	—	2	3 0 0	0 2 0
	7. Coagh	6	1	10	—	6	—	—	1	—	10	0 7 6	0 10 0
	8. Cookstown	48	—	2	—	48	—	—	1	—	16	4 2 0	0 16 0
	9. Dunamanagh	—	—	—	—	—	—	—	—	—	—	—	—
	10. Dungannon	209	14	6	7	189	13	—	11	3	62	95 8 6	3 2 6
	11. Fintona	—	—	—	—	—	—	—	—	—	—	—	—
	12. Fivemiletown	—	—	—	—	—	—	—	—	—	—	—	—
	13. Gortin	27	2	8	—	—	27	—	—	2	12	1 13 6	0 12 0
	14. Newton Stewart	63	19	3	4	40	19	—	19	—	29	0 19 6	1 9 0
	15. Moy	25	—	8	—	25	—	—	—	—	11	5 15 0	0 11 0
	16. Omagh	—	—	—	—	—	—	—	—	—	—	—	—
	17. Pomeroy	60	2†	—	—	60	—	—	—	—	16	3 5 0	0 16 0
	18. Stewartstown	18*	—	3	—	—	—	—	—	—	19	2 6 0	0 19 6
	19. Strabane	—	16†	—	—	—	—	—	4	—	12	0 14 6	0 17 6
	20. Trillick	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Tyrone	484	59	52	13	394	59	—	41	5	203	119 7 0	10 9 6
Waterford	15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz.:—												
	1. Ballymacarberry	—	—	—	—	—	—	—	—	—	—	—	—
	2. Callahane	—	—	—	—	—	—	—	—	—	—	—	—
	3. Cappoquin	—	—	—	—	—	—	—	—	—	—	—	—
	4. Carrickbeg	—	—	—	—	—	—	—	—	—	—	—	—
	5. Clashmore	—	—	—	—	—	—	—	—	—	—	—	—
	Do.	—	—	—	—	—	—	—	—	—	—	—	—
	6. Dungarvan	—	—	—	—	—	—	—	—	—	—	—	—
	7. Kilmacthomas	—	—	—	—	—	—	—	—	—	—	—	—
	8. Lismore		—	—	—	—	—	—	—	—	—	—	—

* Not stated in Return whether too heavy or too light.
† Do. do. too large or too small.

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Number seized.			Cause of Seizure.						Number of Convictions.	Amount of Penalties.	Amount of Costs.
					Weights.			Measures.					
		Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.			
												£ s. d.	£ s. d.
WATERFORD—*cont.*	9. Portlaw	—	—	—	—	—	—	—	—	—	—	—	—
	10. Stradbally	—	—	—	—	—	—	—	—	—	—	—	—
	11. Tallow	—	—	—	—	—	—	—	—	—	—	—	—
	12. Tramore	—	—	—	—	—	—	—	—	—	—	—	—
	13. Villier's Town	—	—	—	—	—	—	—	—	—	—	—	—
	14. Waterford, St. Patrick's Hall.	2	—	—	—	2	—	—	—	—	1	0 10 0	0 1 0
	15. Waterford, Boro.	52	79	1	—	52	—	—	—	79	77	8 11 0	3 17 0
	Total for County Waterford	54	79	1	—	54	—	—	—	79	78	9 1 0	3 18 0
WESTMEATH	16 Petty Sessional Districts of the County, viz.:—												
	1. Ballynacargy	10	—	2	4	6	—	—	—	—	7	0 11 0	0 7 0
	2. Ballymore	—	—	1	—	—	—	—	—	—	1	0 1 0	0 1 0
	3. Brawney	63	46	1	—	63	—	3	2	41	22	0 1 10	1 5 8
	4. Castlepollard	—	—	—	—	—	—	—	—	—	—	—	—
	5. Clonmellon	—	—	—	—	—	—	—	—	—	—	—	—
	6. Collinstown	—	—	—	—	—	—	—	—	—	—	—	—
	7. Delvin	—	—	1	—	—	—	—	—	—	—	—	—
	8. Glasson	—	—	—	—	—	—	—	—	—	—	—	—
	9. Kilbeggan	—	—	—	—	—	—	—	—	—	—	—	—
	10. Killucan	21	2	4	—	21	—	—	2	—	12	5 6 6	0 12 0
	11. Knockdrin	2	—	—	—	2	—	—	—	—	2	0 1 6	0 2 0
	12. Moate	3	1	—	—	—	—	—	—	—	2	0 10 1	0 2 0
	13. Mullingar	—	—	—	—	—	—	—	—	—	—	—	—
	14. Multifarnham	—	—	—	—	—	—	—	—	—	—	—	—
	15. Rathowen	2	—	8	—	—	—	—	—	—	8	2 9 6	0 8 0
	16. Rockfortbridge	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Westmeath	101	49	17	4	92	—	3	4	41	54	9 1 5	2 17 8
WEXFORD	12 Petty Sessional Districts of the County, viz.:—												
	1. Arthurstown	68	8	11	5	50	13	—	8	—	25	1 3 2	1 5 0
	2. Clonroche	—	—	—	—	—	—	—	—	—	—	—	—
	3. Duncormick	3	—	2	—	3	—	—	—	—	3	0 3 0	0 3 0
	4. Enniscorthy	9	—	—	—	9	—	—	—	—	3	0 3 0	0 3 0
	5. Ferns	—	—	—	—	—	—	—	—	—	10	0 15 0	0 10 0
	6. Gorey	—	—	—	—	—	—	—	—	—	—	—	—
	7. Killinick	9	—	—	—	9	—	—	—	—	3	0 1 6	0 3 0
	8. New Ross	—	—	—	—	—	—	—	—	—	—	—	—
	9. Newtownbarry	5	—	—	—	5	—		—	—	1	0 5 0	0 1 0
	10. Oulart	20		1	—	20			—	—	7	0 15 6	0 7 0
	11. Taghmon	2	—	3	—	2	—	—	—	—	4	0 13 0	0 4 0
	12. Wexford	—		—	—	-	—	—	—	—	—	—	—
	Total for County Wexford	116	8	17	5	98	13	—	8	—	56	3 19 2	2 16 0
WICKLOW	13 Petty Sessional Districts of the County, viz.:—												
	1. Arklow	—	—	—	—	—	—	—	—	—	—	—	—
	2. Baltingliss	—	—	—	—	—	—	—	—	—	—	—	—
	3. Blessington	—	—	—	—	—	—	—	—	—	—	—	—
	4. Bray	—	—	—	—	—	—	—	—	—	—	—	—
	5. Carnew	—	—	1	—	—	—	—	—	—	1	0 2 6	0 2 0
	6. Coolkenns	—	—	—	—	—	—	—	—	—	—	—	—
	7. Dunlavin	1	—	—	—	1	—	—	—	—	1	0 10 0	0 9 0
	8. Enniskerry	—	—	—	—	—	—	—	—	—	—	—	—
	9. Newtonmountkennedy	20	3	2	1	19	—	—	3	—	4	6 1 0	0 4 6
	10. Rathdrum	—	—	—	—	—	—	—	—	—	—	—	—
	11. Redcross	—	—	—	—	—	—	—	—	—	—	—	—
	12. Tinahely	13	—	2	—	13	—	—	—	—	6	0 12 7	0 6 0
	13. Wicklow, for County	—	—	—	—	—	—	—	—	—	—	—	—
	Do., Petty Sess. Div.	—	—	—	—	—	—	—	—	—	—	—	—
	Total for County Wicklow	34	3	5	1	33	—	—	3	—	12	7 6 1	1 1 6

Appendix IV.—*cont.*—Abstract C. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

SUMMARY.

County.	Number seized.			Cause of Seizure.						No. of Convictions.	Amount of Penalties.	Amount of Costs.	Average Amount in each County for a single Conviction.	
				Weights.			Measures.							
	Weights.	Measures.	Balances, &c.	Too heavy.	Too light.	Unstamped or otherwise unjust.	Too large.	Too small.	Unstamped or otherwise unjust.				Amount of Penalty.	Amount of Costs.
											£ s. d.	£ s. d.	s. d.	s. d.
Antrim	508	15	32	32	379	—	—	11	—	220	38 2 7	8 8 2	3 6	0 9
Armagh	92	8	15	—	85	—	—	—	—	30	5 13 3	2 15 0	3 0	1 6
Carlow	47	7	2	—	47	—	—	4	3	25	5 8 0	1 6 0	4 4	1 0
Cavan	36	1	2	1	35	—	—	—	—	49	6 14 6	3 1 0	1 3	0 5
Clare	363	11	25	47	314	2	—	10	—	121	29 12 5	6 11 0	4 11	1 1
Cork (W.R.)	102	111	40	20	82	—	—	109	—	93	16 8 1½	4 15 0	3 6	1 0
Cork (E.R.)	1,228	684	57	96	894	109	85	339	192	483	51 7 6	27 4 6	2 1	1 1
Donegal	354	32	34	11	205	51	1	19	4	146	21 14 7	10 19 0	2 11	1 6
Down	453	1	70	20	395	5	3	34	—	200	33 10 7	7 12 0	3 4	0 9
Dublin (County)	262	19	7	6	198	44	—	3	8	57	28 14 6	2 16 6	8 5	0 10
Do. (City)	—	—	—	—	—	—	—	—	—	11	2 8 6	1 5 0	4 5	2 3
Fermanagh	64	1	10	1	54	1	—	1	—	21	11 5 1½	1 11 6	10 9	1 6
Galway (W.R.)	144	4	5	11	120	13	—	4	—	64	7 17 5	3 17 0	2 6	1 2
Galway (E.R.)	260	50	30	54	110	92	4	10	36	90	24 0 6	4 6 6	5 4	0 11
Kerry	194	136	11	8	161	7		11	106	125	15 2 8	6 2 0	2 7	0 11
Kildare	41	18	5	3	38	-	—	18	—	19	4 15 7	2 6 6	5 0	2 5
Kilkenny	136	15	17	11	106	2	—	10	1	67	13 9 9	4 13 6	4 0	1 5
King's County	87	15	13	18	64	4	1	12	2	38	4 2 6	2 1 0	2 2	1 5
Leitrim	121	1	20	1	76	—	—	1	—	59	15 9 6	2 19 0	5 3	1 0
Limerick	230	31	10	8	184	—	4	26	—	115	8 3 7	6 0 0	1 5	1 0
Londonderry	60	1	2	—	60	—	—	1	—	36	9 13 0	1 18 0	5 4	1 0
Longford	155	12	14	13	141	—	—	9	2	59	12 17 8	2 19 0	4 4	1 0
Louth	237	40	14	10	139	101	—	22	16	76	19 1 6	4 7 0	5 0	1 2
Mayo	92	28	17	4	88	14	—	5	11	39	11 2 7	2 7 6	5 9	1 3
Meath	22	2	7	4	18	—	—	1	—	15	2 2 0	0 15 0	2 10	1 0
Monaghan	10	—	—	2	7	—	—	—	—	3	0 6 0	0 6 0	2 0	2 0
Queen's County	112	33	23	11	92	9	1	8	24	66	12 18 5	3 11 0	3 9	1 1
Roscommon	230	53	17	25	200	—	4	19	30	70	15 6 11	4 10 6	4 5	1 3
Sligo	186	20	22	6	14	166	—	—	20	75	10 14 4	3 15 0	2 10	1 0
Tipperary (N.R.)	35	1	—	2	33	—	—	—	1	11	0 13 6	0 12 6	1 3	1 2
Tipperary (S.R.)	130	40	12	7	94	—	7	5	—	60	11 15 8	3 3 0	3 11	1 0
Tyrone	484	59	52	13	394	59	—	41	5	203	119 7 0	10 9 6	11 10	1 0
Waterford	54	79	1	—	54	—	—	—	79	78	9 1 10	3 18 0	2 4	1 0
Westmeath	101	49	17	4	92	—	3	4	41	54	9 1 5	2 17 8	3 4	1 1
Wexford	116	8	17	5	98	13	—	8	—	56	3 19 2	2 16 0	1 5	1 0
Wicklow	34	3	5	1	33	—	—	3	—	12	7 6 1	1 1 6	12 2	1 9
	6,780	1,588	625	455	5,104	692	113	748	581	2,956	599 8 3	159 18 4	4 3	1 2

REMARKS BY THE WARDEN OF THE STANDARDS.

In the printed forms of Returns, transmitted from the Standard Department, to be filled up by the Local Inspectors of Weights and Measures under the general head of Number of defective Weights, &c. seized, information was also requested with respect to the number found to require adjustment.

In very few instances, however, have the Inspectors given the actual information of the number found, upon examination, to *require adjustment*, and have generally inserted the number seized as the number requiring to be adjusted. It has therefore been considered unnecessary to include such information in this Abstract.

There are several cases of weights, &c. seized, and no convictions stated. It is not unusual for an offender to be let off with the seizure of the weights, &c., and no further proceedings to be taken.

In three cases, viz.,

Co. Galway, Petty Sess. District, Marble Hill,
Co. Kerry, „ „ Castle island,
„ „ „ Castle Gregory,

convictions are stated, but no seizure.

Under s. 21 of Weights and Measures (Ireland) Act of 1860, all fines and penalties imposed are to be paid over to such purposes and applied in such manner as is provided by the Fines Act (Ireland) 1851.

This last-mentioned Act, 14 & 15 Vict. c. 90., provide that all fines imposed in Petty Sessional Courts shall be paid over to the Petty Sessions Clerk, who is made accountable. Under s. 13 the Court may award any sum not exceeding one-third to the prosecutor or informer, and the remainder shall be awarded to the Crown; but the provision does not apply to fines at the Divisional Courts of Dublin, &c.

By s. 49 of The Irish Constabulary Act, 6 Will 4. c. 13., all fines and penalties awarded to any constable are to be paid over and to form a fund called "The Police Reward Fund," and which is applicable towards paying such gratuities, superannuations, &c. as the Lord Lieutenant may direct.

Standards Department, April 14, 1868.

H. W. Chisholm,
Warden.

Appendix IV.—*continued.*

ABSTRACT of RETURNS from the LOCAL INSPECTORS of WEIGHTS and

ABSTRACT D.—NUMBER of WEIGHTS and MEASURES STAMPED by INSPECTORS, distinguishing the several DENOMINATIONS.

County.	District, City, Town, &c.	Avoirdupois.																
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
ANTRIM	26 Petty Sessional Districts of the County; including the City of Belfast and the County of the Town of Carrickfergus, viz.:—																	
	1. Ahoghill	75	100	154	190	100	203	300	280	400	350	250	300	200	—	—	—	2,867
	2. Antrim	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Ballycastle	86	50	69	68	67	67	67	64	62	59	59	59	59	—	—	—	836
	4. Ballyclare	69	44	58	70	61	64	62	62	64	60	58	58	57	—	—	—	787
	5. Ballymena	144	63	97	125	65	120	171	136	114	93	64	70	51	—	—	—	1,313
	6. Ballymoney	276	168	160	175	154	155	145	137	127	129	130	121	108	—	—	—	1,985
	7. Belfast, East	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Do. South	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9. Do. North	2,519	776	1,377	1,526	664	1,546	1,706	1,526	1,410	1,281	1,340	1,317	1,136	—	—	—	18,124
	10. Do. West	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Bushmills	80	80	100	100	60	100	150	150	100	120	115	—	—	—	—	—	1,155
	12. Carrickfergus, County of *Town.*	126	86	113	120	59	107	154	125	113	102	91	97	83	—	—	—	1,376
	13. Carrickfergus, Petty Sess.	46	15	38	66	31	51	65	50	46	44	44	40	41	—	—	—	577
	14. Cushendall	41	22	26	22	25	27	31	34	41	43	50	50	54	—	—	—	466
	15. Crumlin	40	21	25	21	24	26	30	33	39	41	43	48	52	—	—	—	448*
	16. Dervock	1	4	22	45	58	54	60	48	42	50	45	46	48	—	—	—	526
	17. Glenarm	150	150	150	156	156	156	165	160	160	160	160	160	160	—	—	—	2,043
	18. Killagan	10	25	30	28	16	30	40	32	18	12	11	19	12	—	—	—	283
	19. Larne	74	36	41	30	24	65	33	33	24	16	56	56	56	—	—	—	544
	20. Lisburn	No record kept.																
	21. Parkgate	12	12	20	31	17	20	30	26	24	24	24	25	25	—	—	—	290
	22. Portglenone	No record kept.																
	23. Randalstown	40	35	30	36	20	24	34	30	30	28	34	24	30	—	—	—	395
	24. Rasharkin	4	5	10	11	5	14	12	11	9	6	10	8	5	—	—	—	110
	25. Toome	13	14	9	14	20	10	40	15	30	15	10	28	13	—	—	—	231
	26. Whitehouse	19	16	25	28	21	31	27	21	24	22	23	22	21	—	—	—	300
	Total for the County Antrim	3,825	1,722	2,554	2,862	1,647	2,875	3,322	2,973	2,880	2,655	2,562	2,548	2,231	—	—	—	34,656
ARMAGH	16 Petty Sessional Districts of the County, viz.:—																	
	1. Armagh	172	33	41	42	37	48	43	36	33	29	29	29	27	—	—	—	599
	2. Ballybot	51	67	79	82	16	80	120	125	115	79	77	75	37	—	—	—	1,003
	3. Charlemont	6	2	12	17	5	13	16	13	12	11	16	13	13	—	—	—	149
	4. Clonmacate	—	—	—	8	5	10	15	11	16	6	12	5	—	—	—	—	88
	5. Crossmaglen	10	2	12	17	10	12	16	17	20	20	12	18	—	—	—	—	166
	6. Forkhill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	7. Keady	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Lurgan, Town	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9. Loughgall, Town	10	15	35	30	25	36	40	27	31	20	28	16	24	—	—	—	337
	10. Markethill	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Middletown	33	22	21	27	11	19	33	18	16	19	13	16	15	—	—	—	263
	12. Newtonhamilton	11	14	16	16	21	17	25	25	25	25	25	25	25	—	—	—	270
	13. Portadown, Town	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	14. Do. Petty Sess.	80	120	346	250	68	340	420	240	220	180	120	210	120	—	—	—	2,714
	15. Poyntzpass	10	20	20	24	28	30	45	50	50	30	60	60	40	—	—	—	467
	16. Tynan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Total for the County Armagh	383	295	582	513	226	605	773	562	538	419	392	467	301	—	—	—	6,056
CARLOW	7 Petty Sessional Districts of the County, viz.:—																	
	1. Bagnalstown	176	50	68	73	63	72	87	73	55	52	42	32	26	—	—	—	869
	2. Borris	87	31	34	30	27	38	51	41	31	34	30	35	19	—	—	—	488
	3. Carlow	520	147	104	212	169	211	208	199	174	133	112	93	52	—	—	—	2,330
	4. Fenagh	13	2	7	5	5	4	3	2	3	3	3	6	2	—	—	—	58
	5. Hacketstown	9	5	8	5	6	6	4	6	7	4	4	6	3	—	—	—	73
	6. Myshall	9	4	9	7	6	10	18	18	15	17	15	14	6	—	—	—	148
	7. Tullow	61	34	68	63	50	68	118	110	87	83	75	28	15	—	—	—	860
	Total for the County Carlow	875	273	298	395	326	409	489	440	372	331	281	214	123	—	—	—	4,826
CAVAN	18 Petty Sessional Districts of the County, viz.:—																	
	1. Arva	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2. Bailieborough	34	9	13	10	5	13	13	12	9	9	9	10	6	—	—	—	152
	3. Belturbet	18	9	16	25	8	12	21	20	18	14	13	13	8	—	—	—	195
	4. Ballycounell	14	3	6	13	2	8	4	8	4	8	6	5	3	—	—	—	84
	5. Ballinagh	44	33	33	49	18	38	63	56	45	32	28	34	22	—	—	—	495
	6. Ballyjamesduff	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	7. Bawnboy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Cavan	70	80	90	120	50	40	220	220	220	220	150	170	150	—	—	—	1,800
	9. Cootehill	50	40	20	30	60	100	50	60	90	100	109	91	21	—	—	—	822
	10. Killyglasson	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Kingscourt	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	12. Killeshandra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13. Kilnaleck	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* The *total number* only of Weights and of Liquid Measures stamped being stated in the Return made by the Local Inspector, and not the several denominations, an *estimated* and *average* number of the latter is here inserted.

Appendix IV.—*continued.*

MEASURES in IRELAND, for the Year ended 31 December 1866—*continued.*

ABSTRACT D.—NUMBER of WEIGHTS and MEASURES STAMPED by INSPECTORS, distinguishing the several DENOMINATIONS.

Measures of Capacity.																				Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.										Measures for Dry Goods.												
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	½ Pint.	Gill.	½ Gill.	Total.	Bushel.	½ Bushel.	Peck.	¼ Peck or Gallon.	½ Peck or ¼ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
																					26 Petty Sessional Districts of the County; including the City of Belfast and the County of the Town of Carrickfergus, viz.:—	ANTRIM.
—	—	10	13	21	28	30	34	30	166	—	—	—	—	—	—	—	—	—	—	10	1. Ahoghill.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Antrim.	
—	—	10	19	28	33	33	33	33	189	12	12	12	12	—	—	—	—	—	48	33	3. Ballycastle.	
—	—	4	3	25	25	25	25	25	132	—	—	—	—	—	—	—	—	—	—	—	4. Ballyclare.	
—	—	2	4	9	8	11	11	12	57	—	—	—	—	—	—	—	—	—	—	5	5. Ballymena.	
—	—	10	10	20	24	24	30	36	154	4	4	4	—	—	—	—	—	—	12	16	6. Ballymoney.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Belfast, East.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Do. South.	
17	36	157	91	480	693	293	269	255	2,291	122	54	52	30	—	—	—	—	—	258	30	9. Do. North.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Do. West.	
—	—	20	25	30	30	34	35	30	204	—	—	—	—	—	—	—	—	—	—	12	11. Bushmills.	
3	2	6	7	17	28	15	22	19	119	3	2	2	1	—	—	—	—	—	8	1	12. Carrickfergus, County of Town.	
—	—	—	6	18	17	17	19	16	93	1	—	—	1	—	—	—	—	—	2	—	13. Carrickfergus, Petty Sess.	
—	—	5	7	9	16	22	36	0	135	—	—	3	2	—	—	—	—	—	5	10	14. Cushendale.	
—	—	—	2	6	6	5	6	5	30*	—	—	—	—	—	—	—	—	—	—	1	15. Crumlin.	
—	—	1	2	8	13	19	19	1	83	—	—	—	—	—	—	—	—	—	—	7	16. Dervock.	
—	—	4	6	90	90	90	95	90	465	1	1	1	—	—	—	—	—	—	3	4	17. Glenarm.	
—	—	1	2	3	6	5	9	12	38	—	—	—	—	—	—	—	—	—	—	2	18. Killagan.	
—	15	30	30	30	30	30	30	30	225	—	—	—	—	—	—	—	—	—	—	4	19. Larne.	
No record kept.																					20. Lisburn.	
—	—	1	1	9	12	14	14	16	67	—	—	—	—	—	—	—	—	—	—	—	21. Parkgate.	
No record kept.																					22. Portglenone.	
—	—	—	3	4	3	3	4	3	20	—	—	—	—	—	—	—	—	—	—	—	23. Randalstown.	
—	—	—	—	3	2	3	2	2	12	—	—	—	—	—	—	—	—	—	—	2	24. Rasharkin.	
—	—	—	3	4	3	3	4	3	20	—	—	—	—	—	—	—	—	—	—	—	25. Toome.	
—	—	—	3	9	11	15	11	11	60	—	—	—	—	—	—	—	—	—	—	—	26. Whitehouse.	
20	53	261	237	823	1,078	691	708	689	4,560	143	73	74	46	—	—	—	—	—	336	137	Total for the County Antrim.	
																					16 Petty Sessional Districts of the County, viz.:—	ARMAGH.
—	1	4	4	10	16	16	14	12	77	—	4	8	—	—	—	—	—	—	12	4	1. Armagh.	
—	—	7	7	21	35	45	29	15	159	—	—	—	—	—	—	—	—	—	—	—	2. Ballybot.	
—	—	—	—	1	2	1	2	2	8	—	—	—	—	—	—	—	—	—	—	—	3. Charlemont.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Clonmacate.	
—	—	1	1	2	3	3	4	5	19	—	—	—	—	—	—	—	—	—	—	—	5. Crossmaglen.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6. Forkhill.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Keady.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Lurgan, Town.	
—	—	3	4	6	3	5	7	4	32	2	—	1	—	—	—	—	—	—	3	—	9. Loughhall, Town.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Markethill.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11. Middletown.	
—	—	1	3	7	13	13	15	15	67	1	1	1	—	—	—	—	—	—	3	1	12. Newtonhamilton.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13. Portadown, Town.	
1	20	40	46	82	101	80	105	82	557	3	1	—	—	—	—	—	—	—	4	12	14. Do. Petty Sess.	
—	—	3	3	10	20	20	30	30	116	—	—	—	—	—	—	—	—	—	—	—	15. Poyntzpass.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16. Tynan.	
1	21	59	68	139	193	183	206	165	1,035	6	6	10	—	—	—	—	—	—	22	17	Total for the County Armagh.	
																					7 Petty Sessional Districts of the County, viz.:—	CARLOW.
—	1	4	150	180	167	102	80	60	744	—	—	—	—	—	—	—	—	—	—	2	1. Bagnalstown.	
—	—	5	61	65	68	14	23	14	250	—	—	—	—	—	—	—	—	—	—	9	2. Borris.	
1	1	9	34	152	266	74	25	11	553	1	1	1	1	—	—	—	—	—	4	45	3. Carlow.	
—	—	1	1	6	12	7	7	3	37	—	—	—	—	—	—	—	—	—	—	1	4. Fenagh.	
—	—	1	—	2	5	2	4	3	17	—	—	—	—	—	—	—	—	—	—	3	5. Hacketstown.	
—	—	4	6	6	6	6	3	3	34	—	—	—	—	—	—	—	—	—	—	—	6. Myshall.	
—	—	1	1	2	2	2	2	2	12	—	—	—	—	—	—	—	—	—	—	—	7. Tullow.	
1	2	25	253	393	526	207	144	96	1,647	1	1	1	1	—	—	—	—	—	4	60	Total for the County Carlow.	
																					18 Petty Sessional Districts of the County, viz.:—	CAVAN.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1. Arva.	
—	—	—	1	4	4	4	4	4	21	—	—	1	—	—	—	—	—	—	1	1	2. Bailieborough.	
—	—	—	—	2	1	1	1	1	6	—	1	2	—	—	—	—	—	—	3	1	3. Belturbet.	
—	2	3	4	6	6	6	6	6	39	—	—	—	—	—	—	—	—	—	—	1	4. Ballyconnell.	
—	—	3	1	9	9	14	15	9	60	1	—	1	1	—	—	—	—	—	3	6	5. Ballinagh.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6. Ballyjamesduff.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Bawnboy.	
—	—	—	—	2	1	1	1	1	6	—	1	2	—	—	—	—	—	—	3	1	8. Cavan.	
—	—	1	1	24	26	28	3	62	145	4	6	20	10	—	—	—	—	—	40	20	9. Cootehill.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Killyglasson.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11. Kingscourt.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12. Killishandra.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13. Kilnaleck.	

* The *total number* only of Weights and of Liquid Measures stamped being stated in the Return made by the Local Inspector, and not the several denominations, an *estimated* and *average* number of the latter is here inserted.

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.																
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
CAVAN—*cont.*	14. Mullagh	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	15. Mountnugent	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	16. Shercock	20	20	30	34	—	4	50	50	50	50	50	50	30	—	—	—	438
	17. Swanlinbar	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	18. Virginia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Total for the County Cavan	250	194	208	281	143	215	431	426	436	433	356	373	240	—	—	—	3,986
CLARE	20 Petty Sessional Districts of the County, viz.:—																	
	1. Ballyvaughan	8	2	4	2	2	3	4	6	9	2	3	7	3	—	—	—	55
	2. Broadford	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Carrigaholt	8	2	6	7	3	8	5	4	5	6	4	3	4	3	—	—	68
	4. Corofin	6	3	9	14	7	11	16	15	17	13	12	12	9	—	—	—	144
	5. Crusheen	6	3	10	7	2	2	9	12	8	4	6	5	1	—	—	—	75
	6. Doonass	5	4	4	10	9	10	14	14	14	14	14	16	16	—	—	—	144
	7. Ennis, Town	240	64	96	111	120	141	160	173	106	84	65	52	44	—	—	—	1,456
	8. Ennistymon	20	21	64	77	38	60	118	106	84	79	82	72	49	—	—	—	870
	9. Feakle	9	4	19	27	9	12	28	26	23	24	22	22	19	—	—	—	244
	10. Kildysart	24	7	14	19	27	33	47	42	42	41	43	40	44	—	—	—	423
	11. Kilkee	12	20	32	39	41	45	50	50	42	46	6	12	6	6	—	—	407
	12. Killaloe	19	8	21	29	24	29	54	50	45	41	42	37	23	—	—	—	422
	13. Kilrush	40	22	31	45	28	56	75	60	40	28	22	14	8	—	—	—	469
	14. Knock	2	2	4	5	3	6	10	11	9	8	10	10	7	—	—	—	87
	15. Miltown Malbay	24	16	30	33	27	32	48	50	43	36	46	44	42	—	—	—	471
	16. Newmarket-on-Fergus.	28	10	16	12	10	18	20	20	18	20	20	18	18	—	—	—	228
	17. Quin	—	—	—	—	—	2	10	8	10	5	4	6	2	—	—	—	47
	18. Six-Mile Bridge	4	9	12	12	14	15	21	23	23	26	25	26	26	—	—	—	236
	19. Tomgraney	12	2	20	26	24	18	44	25	24	25	25	20	22	—	—	—	287
	20. Tulla	13	8	17	20	15	19	22	22	20	15	17	18	6	—	—	—	212
	Total for the County Clare	480	207	409	495	403	520	755	717	582	517	468	434	349	9	—	—	6,345
CORK, West Riding.	22 Petty Sessional Districts, &c., of the County, viz.:—																	
	1. Ballinspittle	12	4	17	25	15	19	25	28	19	23	22	21	16	—	—	—	246
	2. Ballydehob	30	28	7	9	10	5	30	20	16	8	6	8	6	—	—	—	183
	3. Ballyvourney	5	1	2	2	1	1	2	1	1	—	2	3	2	—	—	—	23
	4. Bandon	365	126	182	191	154	203	223	173	128	110	90	85	61	—	—	—	2,091
	5. Bantry	120	75	82	106	90	53	72	65	58	69	80	84	96	—	—	—	1,050
	6. Carrigboy	—	—	—	—	—	—	11	14	12	9	4	6	7	—	—	—	63
	7. Castletown	11	10	35	60	27	36	63	57	45	39	47	38	27	—	—	—	495
	8. Clonakilty	127	76	104	100	96	110	90	63	41	47	46	26	18	—	—	—	944
	9. Dromoleaghue	15	5	9	9	6	9	18	22	16	11	12	12	12	—	—	—	156
	10. Dunmanway, Town.	48	38	72	49	39	51	54	53	52	44	44	43	43	—	—	—	630
	11. Dunmanway, Petty Sessions.	30	7	7	13	7	5	8	6	5	3	4	—	—	—	—	—	95
	12. Goleen	9	6	27	15	15	12	15	11	16	7	10	9	7	—	—	—	159
	13. Innishannon	6	—	1	1	1	—	1	—	—	—	—	—	—	—	—	—	10
	14. Macroon	164	81	148	176	105	168	181	167	123	105	96	93	83	—	—	—	1,690
	15. Millstreet	19	13	35	65	27	36	69	60	53	55	51	50	42	—	—	—	575
	16. Reinmeen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	17. Rosscarberry	50	12	29	37	23	35	41	32	27	19	20	25	21	—	—	—	371
	18. Shandangan	42	11	19	20	23	19	25	24	21	18	19	24	15	—	—	—	280
	19. Skibbereen	46	22	61	51	48	52	65	55	41	32	39	39	34	—	—	—	585
	20. Skull	14	2	12	10	4	3	8	6	1	—	3	6	2	—	—	—	71
	21. Timoleague	35	8	20	27	13	19	21	20	19	13	11	10	9	—	—	—	225
	22. Union Hall	32	8	14	19	11	14	19	27	17	18	14	18	15	—	—	—	226
	Total for the W.R. County Cork	1,180	533	883	985	715	850	1,041	904	711	630	620	600	516	—	—	—	10,168
CORK, East Riding.	33 Petty Sessional Districts, &c. of the E. R. County, including the City of Cork, viz.:—																	
	1. Ahadalane	10	—	1	1	—	2	3	2	2	2	2	2	2	—	—	—	29
	2. Ballymartle	—	1	3	5	1	3	7	7	4	3	2	3	2	—	—	—	41
	3. Blarney	46	7	9	11	10	12	9	3	5	7	2	6	4	—	—	—	131
	4. Buttevant	57	24	72	82	70	93	109	94	82	68	63	81	61	—	—	—	956
	5. Carrigaline	59	9	10	15	12	18	25	20	17	16	12	11	14	—	—	—	238
	6. Castlemartyr	—	—	3	7	8	9	11	9	8	8	9	8	8	—	—	—	88
	7. Castletownroche	146	38	99	102	108	96	113	103	108	90	93	84	42	—	—	—	1,222
	8. Cecilstown	4	4	9	6	5	2	11	15	7	8	13	21	14	—	—	—	119
	9. Charleville	39	24	61	64	51	54	85	77	68	58	47	36	23	—	—	—	687
	10. Cloyne	63	23	32	55	38	48	68	63	50	49	46	47	40	—	—	—	622
	11. Coachford	—	4	6	3	8	7	6	5	9	4	6	3	11	—	—	—	72
	12. Cork, City of	1,133	158	199	183	140	132	140	67	35	19	18	14	14	—	—	—	2,252
	Do. do.	937	135	133	140	139	148	136	72	41	19	14	10	10	—	—	—	1,934
	13. Conna	—	—	4	2	4	7	2	2	2	2	2	2	2	—	—	—	31
	14. Doneraile	66	32	72	79	81	70	96	87	72	61	46	53	46	—	—	—	861
	15. Douglas	66	20	36	34	52	43	37	26	40	34	28	13	21	—	—	—	450
	16. Farran	—	—	—	4	—	3	3	3	2	—	1	1	—	—	—	—	17
	17. Fermoy	53	35	67	79	68	79	95	87	79	76	77	75	73	—	—	—	943
	18. Kanturk	195	85	159	171	154	152	172	149	119	104	68	70	66	—	—	—	1,664
	19. Kildorrery	62	25	35	38	25	20	18	19	22	25	19	26	14	—	—	—	348
	20. Kinsale, Borough	151	28	52	63	65	60	67	57	54	41	37	59	32	—	—	—	746
	21. Knocknagree	2	3	8	21	5	9	22	23	20	23	21	28	20	—	—	—	205
	22. Liscarroll	11	4	18	25	20	19	29	27	23	21	22	21	15	—	—	—	255
	23. Lisheens	20	17	14	12	2	16	18	12	15	14	17	15	—	—	—	—	172
	24. Mallow	143	42	84	90	81	83	96	76	61	50	48	48	47	—	—	—	949
	25. Midleton	328	74	103	117	95	94	108	91	73	63	50	54	43	—	—	—	1,293
	26. Mitchelstown	102	42	84	114	80	84	138	148	116	84	100	110	88	—	—	—	1,290
	27. Newmarket	6	4	13	24	9	12	32	30	29	25	22	20	18	—	—	—	244
	28. Passage West	43	2	12	17	15	26	36	32	28	28	27	21	13	—	—	—	300
	29. Queenstown	78	26	36	84	67	90	78	85	91	79	85	88	87	—	—	—	974
	30. Rathcormack	165	43	95	66	41	48	40	46	35	40	43	30	40	—	—	—	732
	31. Riverstown	79	24	36	43	19	36	39	33	26	27	24	21	23	—	—	—	434
	32. Tracton	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	33. Youghal	375	52	73	74	62	75	66	64	49	8	45	37	—	—	—	—	980
	Total for the E. R. County Cork	4,440	985	1,638	1,831	1,535	1,650	1,915	1,634	1,392	1,156	1,109	1,098	893	—	—	—	21,276

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																				Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.										Measures for Dry Goods.												
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	½ Pint.	Gill.	¼ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or Gallon.	¼ Peck or ¾ Gallon.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14. Mullagh.	CAVAN—*cont.*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15. Mountnugent.	
—	—	10	—	12	14	14	16	14	80	—	—	2	2	—	—	—	—	4	3		16. Shercock.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17. Swanlinbar.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18. Virginia.	
—	2	17	7	59	61	68	46	97	357	5	8	28	13	—	—	—	—	54	33		Total for the County Cavan.	
																					20 Petty Sessional Districts of the County, viz.:—	CLARE.
—	—	1	1	2	3	6	2	—	15	—	—	—	—	—	—	—	—	—	—	1	1. Ballyvaughan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Broadford.	
—	—	3	5	7	14	9	3	3	44	—	—	—	—	—	—	—	—	—	—	—	3. Carrigaholt.	
—	—	1	6	9	10	8	8	8	50	—	—	—	—	—	—	—	—	—	—	—	4. Corofin.	
—	—	2	8	7	8	7	8	2	42	—	—	—	—	—	—	—	—	—	—	—	5. Crusheen.	
—	—	—	6	21	53	10	8	8	106	—	—	—	—	—	—	—	—	—	—	—	6. Doonass.	
1	4	42	56	74	83	91	104	121	576	—	—	—	—	—	—	—	—	—	—	11	7. Ennis, Town.	
—	—	16	28	36	39	32	31	8	190	—	—	—	—	—	—	—	—	—	—	—	8. Ennistymon.	
—	—	2	13	10	25	9	11	7	77	—	—	—	—	—	—	—	—	—	—	3	9. Feakle.	
—	—	6	11	16	16	16	16	16	97	—	—	—	—	—	—	—	—	—	—	2	10. Kildysart.	
—	1	8	18	30	36	28	10	—	131	—	—	—	—	—	—	—	—	—	—	—	11. Kilkee.	
—	—	11	25	35	29	25	25	25	175	—	—	—	—	—	—	—	—	—	—	—	12. Killaloe.	
—	3	10	18	40	48	35	20	6	180	—	—	—	—	—	—	—	—	—	—	—	13. Kilrush.	
—	—	1	4	7	10	8	7	6	43	—	—	—	—	—	—	—	—	—	—	—	14. Knock.	
—	—	22	21	22	22	22	22	22	153	—	—	—	—	—	—	—	—	—	—	7	15. Miltown Malbay.	
—	—	3	20	30	38	18	6	6	121	—	—	—	—	—	—	—	—	—	—	—	16. Newmarket-on-Fergus.	
—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	17. Quin.	
—	—	—	9	10	30	10	14	13	86	—	—	—	—	—	—	—	—	—	—	—	18. Six-Mile Bridge.	
—	—	5	8	40	22	20	20	20	135	—	—	—	—	—	—	—	—	—	—	—	19. Tomgraney.	
—	—	4	6	7	6	8	8	3	42	—	—	—	—	—	—	—	—	—	—	—	20. Tulla.	
1	8	137	263	403	493	362	323	174	2,264	—	—	—	—	—	—	—	—	—	—	24	Total for the County Clare.	
																					22 Petty Sessional Districts, &c., of the County, viz.:—	CORK, West Riding
—	—	1	138	10	85	1	—	—	235	—	—	—	—	—	—	—	—	—	—	—	1. Ballinspittle.	
—	—	2	78	2	50	16	—	—	148	—	—	—	—	—	—	—	—	—	—	—	2. Ballydrehob.	
—	—	—	75	—	51	3	3	3	135	—	—	—	—	—	—	—	—	—	—	—	3. Ballyvourney.	
—	—	12	287	50	424	60	50	46	929	—	—	—	—	—	—	—	—	—	—	—	4. Bandon.	
—	—	15	292	14	348	58	51	25	803	—	—	—	—	—	—	—	—	—	—	—	5. Bantry.	
—	—	—	35	—	33	8	8	9	93	—	—	—	—	—	—	—	—	—	—	—	6. Carrigboy.	
—	—	—	136	8	88	20	19	18	289	—	—	—	—	—	—	—	—	—	—	—	7. Castletown.	
—	—	3	281	7	253	38	35	27	644	—	—	—	—	—	—	—	—	—	—	—	8. Clonakillty.	
—	—	—	159	—	121	13	21	15	329	—	—	—	—	—	—	—	—	—	—	—	9. Dromoleaghue.	
—	—	29	270	43	264	61	45	42	754	—	—	—	—	—	—	—	—	—	—	—	10. Dunmanway, Town.	
—	—	—	171	—	121	7	8	5	312	—	—	—	—	—	—	—	—	—	—	—	11. Dunmanway, Petty Sessions.	
—	—	—	8	6	31	2	4	3	54	—	—	—	—	—	—	—	—	—	—	—	12. Goleen.	
—	—	1	37	3	72	1	1	1	116	—	—	—	—	—	—	—	—	—	—	—	13. Innishannon.	
—	—	7	751	32	702	87	63	65	1,687	—	—	—	—	—	—	—	—	—	—	—	14. Macroon.	
—	—	3	285	8	333	26	27	32	714	—	—	—	—	—	—	—	—	—	—	—	15. Millstreet.	
—	—	1	19	4	23	6	10	5	68	—	—	—	—	—	—	—	—	—	—	—	16. Reinmeen.	
—	—	—	171	4	165	14	16	18	388	—	—	—	—	—	—	—	—	—	—	—	17. Roscarberry.	
—	—	1	193	1	152	11	6	13	377	—	—	—	—	—	—	—	—	—	—	—	18. Shandanagan.	
—	—	8	115	5	115	16	17	17	293	—	—	—	—	—	—	—	—	—	—	—	19. Skibbereen.	
—	—	—	28	1	26	6	8	5	74	—	—	—	—	—	—	—	—	—	—	—	20. Skull.	
—	—	—	50	—	7	—	—	—	57	—	—	—	—	—	—	—	—	—	—	—	21. Timoleague.	
—	—	—	167	4	189	27	17	23	425	—	—	—	—	—	—	—	—	—	—	—	22. Union Hall.	
—	—	83	3,725	202	3,653	480	409	372	8,924	—	—	—	—	—	—	—	—	—	—	—	Total for the W. R. County Cork.	
																					33 Petty Sessional Districts, &c., of the E. R. County, including the City of Cork, viz.:—	CORK, East Riding.
—	—	—	68	—	42	1	1	1	113	—	—	—	—	—	—	—	—	—	—	—	1. Ahadalane.	
—	—	1	179	160	322	4	16	13	695	—	—	—	—	—	—	—	—	—	—	—	2. Ballymartle.	
—	—	2	177	16	314	9	7	14	539	—	—	—	—	—	—	—	—	—	—	—	3. Blarney.	
—	—	3	371	172	670	59	51	39	1,365	—	—	—	—	—	—	—	—	—	—	—	4. Buttevant.	
—	—	1	119	124	125	5	10	—	384	—	—	—	—	—	—	—	—	—	—	—	5. Carrigaline.	
—	—	—	70	—	50	—	—	4	124	—	—	—	—	—	—	—	—	—	—	—	6. Castlemartyr.	
—	—	—	353	—	417	24	31	31	861	—	—	—	—	—	—	—	—	—	—	—	7. Castletownroche.	
—	—	1	92	1	152	7	8	9	270	—	—	—	—	—	—	—	—	—	—	—	8. Cecilstown.	
—	—	9	99	11	219	17	18	13	386	—	—	—	—	—	—	—	—	—	—	—	9. Charleville.	
—	—	4	360	6	202	10	10	11	603	—	—	—	—	—	—	—	—	—	—	—	10. Cloyne.	
—	—	1	17	1	8	2	1	3	33	—	—	—	—	—	—	—	—	—	—	—	11. Coachford.	
—	—	14	53	14	200	20	14	6	321	—	—	—	—	—	—	—	—	—	—	—	12. Cork, City of.	
—	—	14	50	11	219	16	12	23	345	—	—	—	—	—	—	—	—	—	—	—	Do. do.	
—	—	—	27	—	36	4	1	2	70	—	—	—	—	—	—	—	—	—	—	—	13. Conna.	
—	—	4	284	6	323	32	26	28	703	—	—	—	—	—	—	—	—	—	—	—	14. Doneraile.	
—	—	23	293	186	460	32	21	18	1,033	—	—	—	—	—	—	—	—	—	—	—	15. Douglas.	
—	—	5	36	5	36	3	3	3	91	—	—	—	—	—	—	—	—	—	—	—	16. Farran.	
—	—	2	486	4	502	41	35	20	1,090	—	—	—	—	—	—	—	—	—	—	—	17. Fermoy.	
—	—	17	1,148	21	1,682	43	25	14	2,950	—	—	—	—	—	—	—	—	—	—	—	18. Kanturk.	
—	—	2	248	8	323	14	16	13	624	—	—	—	—	—	—	—	—	—	—	—	19. Kildorrery.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20. Kinsale, Borough.	
—	—	—	134	1	113	16	15	17	296	—	—	—	—	—	—	—	—	—	—	—	21. Knocknagree.	
—	—	2	145	—	217	15	14	13	406	—	—	—	—	—	—	—	—	—	—	—	22. Liscarroll.	
—	—	17	73	85	97	15	15	15	317	—	—	—	—	—	—	—	—	—	—	—	23. Lisheens.	
—	—	16	213	30	158	16	17	15	465	—	—	—	—	—	—	—	—	—	—	—	24. Mallow.	
—	—	5	238	12	248	21	6	7	537	—	—	—	—	—	—	—	—	—	—	—	25. Midleton.	
2	—	3	110	4	85	40	34	40	318	—	—	—	—	—	—	—	—	—	—	—	26. Mitchelstown.	
—	—	2	144	5	228	23	23	23	448	—	—	—	—	—	—	—	—	—	—	—	27. Newmarket.	
—	—	6	59	33	253	19	17	20	407	—	—	—	—	—	—	—	—	—	—	—	28. Passagewest.	
—	—	29	216	124	638	128	52	54	1,241	—	—	—	—	—	—	—	—	—	—	—	29. Queenstown.	
—	—	15	196	138	214	20	28	14	625	—	—	—	—	—	—	—	—	—	—	—	30. Rathcormack.	
—	—	—	417	32	643	72	18	34	1,216	—	—	—	—	—	—	—	—	—	—	—	31. Riverstown.	
—	—	1	30	11	32	—	—	—	74	—	—	—	—	—	—	—	—	—	—	—	32. Tracton.	
—	—	18	20	3	49	6	3	—	99	—	—	—	—	—	—	—	—	—	—	—	33. Youghal.	
2	—	217	6,030	1,224	9,277	734	548	517	19,049	—	—	—	—	—	—	—	—	—	—	—	Total for the E. R. County Cork.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.															
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
DONEGAL	26 Petty Sessional Districts of the County, viz.:—																	
	1. Adara	24	12	23	30	17	27	53	47	43	37	42	37	24	—	—	—	416
	2. Avanmore	3	—	2	—	—	—	2	2	2	2	2	1	1	—	—	—	17
	3. Ballintra	9	7	27	30	14	25	51	38	34	36	37	33	33	—	—	—	374
	4. Ballyshannon	59	33	59	62	66	41	103	86	68	75	78	75	64	—	—	—	860
	5. Buncrana	24	17	41	43	31	28	65	60	56	54	54	50	52	—	—	—	575
	6. Burnfoot	23	8	13	16	17	15	19	14	14	12	11	12	11	—	—	—	185
	7. Bunbeg	Not known.																
	8. Carndonagh	59	60	72	84	49	58	97	98	102	90	115	113	104	—	—	—	1,101
	9. Churchill	14	6	7	7	5	6	16	7	6	8	8	8	4	—	—	—	102
	10. Donegal	No account kept.																
	11. Dungloe	30	16	14	14	28	27	40	45	40	28	45	40	30	—	—	—	397
	12. Dunfanaghy	50	35	42	53	33	55	62	54	50	47	42	46	22	—	—	—	591
	13. Glenties	23	20	27	43	50	45	50	44	44	40	40	40	40	—	—	—	506
	14. Killybegs	107	33	49	56	30	50	94	72	59	57	54	51	43	—	—	—	755
	15. Letterkenny	77	48	63	71	48	66	96	68	60	56	49	49	13	—	—	—	764
	16. Lifford	45	35	40	50	6	8	52	50	25	25	30	30	32	—	—	—	428
	17. Malin	18	4	22	35	23	34	60	54	55	53	50	47	44	—	—	—	499
	18. Milford	42	20	19	37	21	42	59	56	54	36	44	37	30	—	—	—	497
	19. Moville	104	40	29	70	80	87	105	93	85	99	115	159	118	—	—	—	1,184
	20. Newton Cunningham.	54	20	40	51	33	40	57	45	49	43	59	31	29	—	—	—	551
	21. Pettigo	6	1	4	2	1	4	2	3	3	1	1	1	1	—	—	—	30
	22. Ramelton	58	33	31	48	31	57	56	58	46	43	44	47	27	—	—	—	579
	23. Rathmullan	No record to show.																
	24. Raphoe	Ditto.																
	25. Stranorlar	56	32	51	64	18	66	114	92	88	67	63	63	48	—	—	—	822
		35 weights stamped of 3½ lbs.																
	26. Tamney	10	20	23	23	37	26	27	35	31	34	32	32	30	—	—	—	360
	Total for the County Donegal	895	500	698	889	638	807	1,280	1,121	1,014	943	1,015	1,002	800	—	—	—	10,602
DOWN	26 Petty Sessional Districts of the County, viz.:—																	
	1. Ardglass and Killough	25	17	21	21	11	9	18	18	12	7	9	9	8	—	—	—	185
	2. Ballynahinch, subdistrict of Killinich.	19	6	13	11	6	13	21	20	14	14	15	15	15	—	—	—	182
	3. Ballynahinch, Petty Sessional.	182	90	119	112	28	56	175	175	175	160	160	160	160	—	—	—	1,752
	4. Banbridge	45	33	56	73	24	47	81	71	64	72	80	79	59	—	—	—	784
		53 weights of 3½ lbs. were stamped.																
	5. Bangor	43	17	35	49	29	47	53	46	50	38	40	—	—	—	—	—	447
	6. Castlewellan	Not known.																
	7. Donaghadee	No account kept.																
	8. Downpatrick	No record of the number.																
	9. Dromara	Nothing stated in Return.																
	10. Dromore	74	36	41	30	24	65	33	33	24	16	56	56	56	4	—	—	548
	11. Gilford	No record kept.																
	12. Greyabbey	No account kept.																
	13. Hillsboro'	44	18	46	65	18	39	54	44	46	46	46	44	44	—	—	—	554
	14. Kilkeel	No account kept.																
	Killough. *See* Ardglass.																	
	15. Killyleagh	300	128	150	120	50	100	150	150	100	100	100	100	100	—	—	—	1,648
	16. Moira	37	18	77	70	7	68	75	70	70	70	72	71	72	6	—	—	783
	17. Newry	140	58	76	100	109	54	195	224	220	179	186	189	169	—	—	—	1,899
	18. Newtownbreda	1	1	9	13	4	13	14	15	14	15	14	16	9	—	—	—	138
	19. Newtonards, subdistrict of.	No record kept.																
	20. Newtonards, subdistrict of Hollywood.	Ditto.																
	21. Portaferry	144	40	57	59	45	49	62	44	52	46	47	40	41	—	—	—	726
	22. Rathfriland	59	64	104	96	46	89	100	100	89	60	68	64	58	—	—	—	997
	23. Saintfeld	25	17	39	52	17	39	68	62	54	45	43	48	23	—	—	—	532*
	24. Seaford	Not known.																
	25. Warrenpoint	13	9	20	27	9	20	35	32	28	23	22	25	12	—	—	—	275
	26. Waringstown	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Total for the County Down	1,151	552	863	898	427	708	1,134	1,104	1,012	891	958	916	826	10	—	—	11,450
DUBLIN	11 Petty Sessional Districts of the County, viz.:—																	
	1. Balbriggan	No account kept.																
	2. Blanchardstown	—	—	1	1	1	1	3	7	6	6	5	3	4	—	—	—	38
	3. Cabinteely	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4. Drumcondra	—	—	3	3	2	2	4	4	6	6	7	7	—	—	—	—	44
	5. Lucan	31	10	9	10	12	14	16	16	14	11	11	11	10	10	10	—	195
	6. Newcastle	10	6	12	6	6	4	10	14	12	12	12	12	12	—	—	—	128
	7. Raheny	2	1	8	7	4	8	12	14	15	13	12	12	11	—	—	—	119
	8. Rathfarnham	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16
	9. Swords	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10. Tallaght	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Name of District not stated.	—	—	7	9	5	11	14	12	9	10	12	8	—	—	—	—	97
	Total for the County Dublin	44	18	41	37	31	41	60	68	63	59	60	54	38	11	11	1	637
	City of Dublin	2,601	421	872	1,134	664	1,823	1,239	1,029	625	265	8	7	1	—	—	—	10,689

* The *total number* only of Weights stamped being stated in the Return from the Local Inspector, and not

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																				Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.										Measures for Dry Goods.												
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	½ Pint.	Gill.	¼ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or Gallon.	¼ Peck or ½ Gallon.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
																					26 Petty Sessional Districts of the County, viz.:—	DONEGAL.
—	—	1	4	7	12	16	15	16	71	—	—	—	—	—	—	—	—	—	—	15	1. Ardara.	
—	—	—	—	—	1	3	3	3	10	—	—	—	—	—	—	—	—	—	—	—	2. Avanmore.	
—	—	3	6	6	9	10	16	13	63	—	—	—	—	—	—	—	—	—	—	5	3. Ballintra.	
—	—	7	8	16	36	33	32	30	162	—	—	—	—	—	—	—	—	—	—	7	4. Ballyshannon.	
—	—	9	9	17	14	22	24	19	114	—	—	—	—	—	—	—	—	—	—	5	5. Buncrana.	
—	—	1	—	15	8	9	9	9	51	—	—	—	—	—	—	—	—	—	—	—	6. Burnfoot.	
								Not known.													7. Bunbeg.	
—	1	3	3	17	26	32	35	46	163	—	—	—	—	—	—	—	—	—	—	12	8. Carndonagh.	
—	—	—	1	2	3	4	5	4	19	—	—	—	—	—	—	—	—	—	—	—	9. Churchill.	
								No account kept.													10. Donegal.	
—	—	—	—	17	17	15	15	15	79	—	—	—	—	—	—	—	—	—	—	12	11. Dungloe.	
—	—	4	4	4	10	19	21	21	83	—	—	—	—	—	—	—	—	—	—	—	12. Dunfanaghy.	
—	—	7	4	13	23	28	31	31	137	—	—	—	—	—	—	—	—	—	—	13	13. Glenties.	
—	—	2	4	9	19	24	24	24	106	—	—	—	—	—	—	—	—	—	—	19	14. Killybegs.	
1	1	3	5	15	20	59	65	40	209	—	1	—	—	—	—	—	—	—	1	25	15. Letterkenny.	
—	—	2	6	12	16	20	30	28	114	—	—	—	—	—	—	—	—	—	—	1	16. Lifford.	
—	—	3	3	13	13	13	13	13	71	—	—	—	—	—	—	—	—	—	—	2	17. Malin.	
—	1	3	3	3	6	22	22	15	75	—	—	—	—	—	—	—	—	—	—	6	18. Milford.	
—	1	40	19	32	39	40	40	40	251	—	—	—	—	—	—	—	—	—	—	1	19. Moville.	
—	—	—	1	4	6	17	16	14	58	—	—	—	—	—	—	—	—	—	—	1	20. Newton Cunningham.	
								14 measures stamped of ½ of a gill.														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21. Pettigo.	
—	—	8	4	8	8	15	11	11	65	—	1	—	—	—	—	—	—	—	1	8	22. Ramelton.	
								No record to show.													23. Rathmullan.	
								Ditto.													24. Raphoe.	
—	—	6	2	8	19	35	60	20	150	—	—	—	—	—	—	—	—	—	—	9	25. Stranorlar.	
—	—	—	3	6	2	12	14	16	53	—	—	—	—	—	—	—	—	—	—	1	26. Tamney.	
1	4	102	89	224	307	448	501	428	2,104	—	2	—	—	—	—	—	—	—	2	140	Total for the County Donegal.	
																					26 Petty Sessional Districts of the County, viz.:—	DOWN.
—	—	—	—	—	4	3	6	3	16	—	—	—	—	—	—	—	—	—	—	4	1. Ardglass and Killough.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Ballynahinch, sub-district of Killinoch.	
—	—	8	17	32	32	32	40	46	207	6	5	8	8	—	—	—	—	—	27	12	3. Ballynahinch, Petty Sessional.	
								50 measures of ½ gill stamped.														
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Banbridge.	
—	—	—	—	3	3	3	3	3	15	—	—	—	—	—	—	—	—	—	—	—	5. Bangor.	
								Not known.													6. Castlewellan.	
								No account kept.													7. Donaghadee.	
								No record of the number.													8. Downpatrick.	
								Nothing stated in Return.													9. Dromara.	
—	—	14	20	20	24	26	26	26	156	2	2	2	2	2	4	—	—	—	14	4	10. Dromore.	
								No record kept.													11. Gilford.	
								No account kept.													12. Greyabbey.	
—	—	10	10	10	10	10	16	18	84	—	—	—	—	—	—	—	—	—	—	4	13. Hillsboro'.	
								No account kept.													14. Kilkeel.	
																					Killough. *See* Ardglass.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15. Killyleagh.	
—	—	2	2	9	10	10	10	10	53	3	—	—	—	—	—	—	—	—	3	6	16. Moira.	
								10 measures of ½ gill stamped.														
1	1	16	22	26	32	30	52	30	210	10	9	11	7	1	—	—	—	—	38	20	17. Newry.	
—	—	—	—	3	3	4	4	3	17	—	—	—	—	—	—	—	—	—	—	—	18. Newtownbreda.	
								3 measures of ½ gill stamped.														
								No record kept.													19. Newtonards, sub-district of.	
								Ditto.													20. Newtonards, sub-district of Hollywood.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21. Portaferry.	
—	—	8	12	28	40	56	36	26	206	10	—	6	4	—	—	—	—	—	20	8	22. Rathfriland.	
—	—	—	—	2	2	2	3	3	12	—	—	—	—	—	—	—	—	—	—	10	23. Saintfeld.	
								Not known.													24. Seaford.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25. Warrenpoint.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26. Waringstown.	
1	1	58	83	133	160	176	196	168	976	31	16	27	21	3	4	—	—	—	102	68	Total for the County Down.	
																					11 Petty Sessional Districts of the County, viz.:—	DUBLIN.
								No account kept.													1. Balbriggan.	
—	—	1	10	4	18	1	1	2	37	—	—	—	—	—	—	—	—	—	—	—	2. Blanchardstown.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3. Cabinteeley.	
—	—	—	—	4	4	4	4	4	20	—	—	—	—	—	—	—	—	—	—	—	4. Drumcondra.	
—	—	—	18	2	11	7	7	—	45	—	—	—	—	—	—	—	—	—	—	—	5. Lucan.	
—	—	—	30	30	20	—	—	—	80	—	—	—	—	—	—	—	—	—	—	—	6. Newcastle.	
—	—	—	1	23	102	9	8	4	147	—	—	—	—	—	—	—	—	—	—	—	7. Raheny.	
1	—	1	1	1	1	1	1	1	8	1	1	1	1	1	1	—	—	—	6	1	8. Rathfarnham.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Swords.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Tallaght.	
—	—	—	4	11	14	6	5	—	40	—	—	—	—	—	—	—	—	—	—	—	11. Name of District not stated.	
1	—	2	64	75	170	28	26	11	377	1	1	1	1	1	1	—	—	—	6	1	Total for the County Dublin.	
469	221	363	278	369	342	118	141	150	2,451	—	—	—	—	—	—	—	—	—	—	—	City of Dublin.	

the several denominations, an *estimated* and *average* number of the latter is here inserted.

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.															
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
FERMANAGH -	13 Petty Sessional Districts of the County, viz.:—																	
	1. Belleck - -	12	8	15	14	—	7	16	12	12	13	13	14	14	—	—	—	150
	2. Brookborough -	6	4	5	8	3	5	12	14	10	9	10	7	6	—	—	—	99
	3. Derrygonnelly -	—	—	3	3	—	6	5	10	10	12	11	8	—	—	—	—	68
	4. Derrylin - -	7	2	5	7	—	2	17	10	10	8	12	10	8	—	—	—	98
	5. Enniskillen -	192	288	144	144	240	88	336	384	384	384	384	400	400	—	—	—	3,768
	6. Irvinestown -	26	10	38	29	—	45	52	32	21	11	9	6	7	—	—	—	286
	7. Kesh - -	12	14	20	16	—	40	25	40	20	28	40	40	25	—	—	—	320
	8. Lack - -	—	3	8	10	3	12	14	13	16	9	18	11	4	—	—	—	121
	9. Letterbreen -	14	4	11	3	—	9	30	16	20	13	18	—	—	—	—	—	138
	10. Lisbellaw - -	—	2	4	5	4	6	20	10	6	6	6	6	6	—	—	—	79
	11. Lisnaskea - -	43	18	36	52	13	37	57	64	55	58	55	70	56	—	—	—	614
	12. Newtonbulter -	16	7	14	21	—	11	21	21	18	19	20	19	14	—	—	—	201
	13. Roslea - -	24	14	16	17	—	17	19	18	15	16	15	20	22	—	—	—	213
	Total for the County Fermanagh -	352	374	319	327	263	285	624	644	597	586	611	611	562	—	—	—	6,155
GALWAY, West Riding.	23 Petty Sessional Districts of the W.R. County, viz.:—																	
	1. Ardrahan - -	—	—	—	—	—	—	4	4	4	4	4	4	4	—	—	—	28
	2. Arran - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Ballymore - -	14	8	12	14	5	10	14	11	8	8	7	4	—	—	—	—	115
	4. Carna - -	—	—	2	4	—	4	2	—	—	4	3	4	2	—	—	—	25
	5. Castletown -	30	7	22	30	2	6	40	24	16	10	6	6	3	—	—	—	202
	6. Clifden - -	25	15	20	22	14	35	42	36	39	36	34	36	32	30	—	—	416
	7. Clonbur - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Derreen - -	40	30	33	20	25	27	28	30	15	18	22	24	27	—	—	—	339
	9. Dunmore - -	63	60	75	50	56	70	65	65	70	65	65	65	65	—	—	—	834
	10. Galway Town -	22	22	22	22	22	22	22	22	22	22	22	22	22	1	1	1	289
	11. Galway, Petty Sess.	405	76	87	77	50	51	125	122	110	40	36	28	26	—	—	—	1,213
	12. Gort - -	30	18	23	24	10	40	44	42	41	38	38	38	40	—	—	—	426
	13. Headford - -	55	22	25	43	25	37	46	46	41	33	37	37	11	—	—	—	458
	14. Kinvara - -	—	—	5	3	4	6	8	10	7	14	7	8	6	—	—	—	78
	15. Letterfrack -	10	2	4	3	3	2	3	2	1	2	3	2	1	—	—	—	38
	16. Maam - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	17. Milltown - -	57	8	10	8	7	6	7	6	5	5	3	3	3	—	—	—	128
	18. Oranmore - -	14	12	16	10	8	14	12	12	14	8	12	12	14	—	—	—	158
	19. Oughterard -	34	18	30	39	15	16	26	26	33	33	23	20	19	—	—	—	332
	20. Roundstone -	1	1	3	3	2	2	1	3	3	3	3	3	2	—	—	—	30
	21. Spiddle - -	5	4	6	5	5	6	6	7	6	5	6	5	5	—	—	—	71
	22. Tuam - -	206	189	198	150	89	69	75	61	55	60	64	55	57	—	—	—	1,328
	23. Williamstown -	9	3	4	5	3	2	8	8	7	7	5	5	5	—	—	—	71
	Total for W.R. County Galway -	1,020	495	597	532	345	425	578	537	497	415	400	381	324	31	1	1	6,579
GALWAY, East Riding.	14 Petty Sessional Districts of the E.R. County, viz.:—																	
	1. Abaseragh - -	46	16	14	16	13	12	15	14	14	14	15	14	—	—	—	—	203
	2. Athenry - -	61	28	23	22	17	25	32	22	18	16	18	21	17	—	—	—	320
	3. Ballinamore -	52	29	39	35	14	26	31	18	13	8	9	8	9	—	—	—	291
	4. Ballinasloe -	154	113	126	186	102	86	105	92	61	63	86	89	101	—	—	—	1,364
	5. Ballygar - -	71	46	69	71	46	58	71	50	46	41	43	42	41	—	—	—	695
	6. Eyrecourt - -	54	58	46	49	38	60	63	49	36	46	53	59	62	—	—	—	673
	7. Gurteen - -	20	15	12	22	4	18	30	28	20	26	24	36	40	—	—	—	295
	8. Killimore - -	19	15	21	23	17	15	29	22	13	20	23	24	23	—	—	—	264
	9. Laurencetown -	40	5	9	8	5	7	9	7	3	2	3	4	2	—	—	—	104
	10. Loughrea - -	40	8	10	9	10	13	26	26	26	26	26	26	26	—	—	—	272
	11. Marblehill - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	12. Mountbellewbridge	14	20	25	27	35	46	33	36	34	34	33	31	23	—	—	—	393
	13. Mountshannon -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	14. Portumna - -	26	11	16	17	12	15	26	17	14	12	11	10	8	—	—	—	195
	Total for E.R. County Galway -	598	364	409	485	313	381	470	381	300	308	344	364	352	—	—	—	5,069
KERRY - -	23 Petty Sessional Districts of the County, viz.:—																	
	1. Annascaul - -	—	1	1	1	1	1	1	1	1	1	1	1	1	—	—	—	12
	2. Ballylongford -	31	7	26	28	24	24	35	34	31	32	27	27	17	—	—	—	343
	3. Cahirciveen -	30	10	42	46	38	43	51	38	40	36	40	43	28	—	—	—	485
	4. Cahirdaniel -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5. Castleisland -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	6. Causeway - -	14	18	13	15	5	6	15	15	15	15	15	15	15	—	—	—	176
	7. Coolmagort - -	4	1	3	10	3	7	8	8	6	8	8	6	6	—	—	—	78
	8. Castlegregory -	—	1	56	68	42	36	80	42	40	40	54	52	44	—	—	—	555
	9. Dingle - -	8	10	12	6	4	10	13	7	20	11	6	6	6	—	—	—	119
	10. Gunsboro' - -	21	30	60	57	33	54	69	63	69	54	45	45	42	—	—	—	642
	11. Kenmare - -	36	18	37	36	35	39	51	44	44	40	38	38	34	—	—	—	490
	12. Killarney - -	95	32	74	84	99	65	84	84	75	60	52	49	33	—	—	—	886
	13. Killorglin - -	60	20	30	34	37	36	60	44	50	40	28	26	28	—	—	—	493
	14. Kilpadder - -	1	1	3	15	4	4	15	11	12	12	11	9	10	—	—	—	108
	15. Listowell - -	53	26	69	87	76	86	109	90	90	90	90	36	3	—	—	—	905
	16. Miltown - -	9	3	12	13	9	14	16	13	12	8	7	5	3	—	—	—	124
	17. Portmagee - -	—	—	—	—	—	—	6	5	6	5	4	6	5	—	—	—	37
	18. Sneem - -	—	1	9	8	9	10	12	12	11	11	8	8	5	1	—	—	105
	19. Tarbert - -	96	19	30	32	36	31	41	38	41	25	35	30	32	—	—	—	486
	20. Tralee - -	262	102	122	227	93	122	131	96	90	73	85	65	69	53	—	—	1,590
	21. Valentia - -	—	—	—	—	—	—	1	1	1	2	1	1	—	—	—	—	7
	22. Waterville - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23. Name of District not stated, the Inspector being absent.							—	—	—	—	—	—	—	—	—	—	—
	Total for County Kerry -	720	300	599	767	548	588	798	646	654	563	555	468	381	54	—	—	7,641

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																				Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.										Measures for Dry Goods.												
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	⅛ Pint.	Gill.	½ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or Gall.	¼ Peck or ½ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
																					13 Petty Sessional Districts of the County, viz.:—	FERMANAGH.
—	—	1	—	4	5	7	7	7	31	—	—	—	—	—	—	—	—	—	—	—	1. Belleek.	
—	—	—	—	—	2	1	3	—	6	1	1	1	1	—	—	—	—	—	4	—	2. Brookborough.	
—	—	1	1	1	1	1	1	1	7	—	—	—	—	—	—	—	—	—	—	—	3. Derrygonnelly.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Derrylin.	
—	—	15	15	60	60	60	60	60	330	—	—	5	—	—	—	—	—	—	5	35	5. Enniskillen.	
—	—	5	2	2	1	1	1	1	13	—	—	—	—	—	—	—	—	—	—	1	6. Irvinestown.	
—	—	1	2	4	10	16	16	20	69	—	—	—	—	—	—	—	—	—	—	—	7. Kesh.	
20 measures of ½ gill stamped.																						
—	—	1	1	1	2	2	2	2	11	—	—	—	—	—	—	—	—	—	—	1	8. Lack.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Letterburn.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10 Lisbellaw.	
—	—	7	7	13	14	14	14	15	84	—	—	5	5	—	—	—	—	—	10	27	11. Lisnaskea.	
—	—	3	5	4	4	6	6	7	35	—	—	—	—	—	—	—	—	—	—	1	12. Newtonbutler.	
—	—	2	3	10	11	12	11	14	63	—	—	—	—	—	—	—	—	—	—	1	13. Roslea.	
—	—	36	36	99	110	120	121	127	649	1	1	11	6	—	—	—	—	—	19	66	Total for County Fermanagh.	
																					23 Petty Sessional Districts of the W.R. County, viz.:—	GALWAY, West Riding.
—	—	—	24	16	10	4	2	2	58	—	—	—	—	—	—	—	—	—	—	—	1. Ardrahan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Arran.	
—	—	1	1	3	3	3	4	3	18	—	—	—	—	—	—	—	—	—	—	—	3. Ballymoore.	
—	—	—	—	—	1	2	2	1	6	—	—	—	—	—	—	—	—	—	—	—	4. Carna.	
—	—	7	36	24	30	14	7	10	128	—	—	—	—	—	—	—	—	—	—	—	5. Castletown.	
—	—	3	16	19	13	6	4	—	61	—	—	—	—	—	—	—	—	—	—	—	6. Clifden.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Clonbur.	
—	—	—	70	16	15	15	13	11	140	—	—	—	—	—	—	—	—	—	—	—	8. Derreen.	
—	—	9	137	159	182	22	30	20	559	—	—	—	—	—	—	—	—	—	—	—	9. Dunmore.	
1	—	22	22	22	22	22	22	22	155	1	1	1	1	1	1	—	—	—	6	—	10. Galway Town.	
3	—	6	100	120	150	60	40	40	519	—	—	—	—	—	—	—	—	—	—	—	11. Galway Petty Sess.	
—	—	—	14	20	40	4	4	—	82	—	—	—	—	—	—	—	—	—	—	—	12. Gort.	
—	—	2	107	36	37	23	22	11	238	—	—	—	—	—	—	—	—	—	—	—	13. Headford.	
—	—	1	7	6	13	4	3	3	37	—	—	—	—	—	—	—	—	—	—	—	14. Kinvara.	
—	—	—	1	2	2	2	3	3	13	—	—	—	—	—	—	—	—	—	—	—	15. Letterfrack.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16. Maam.	
—	—	1	4	8	2	—	—	—	15	—	—	—	—	—	—	—	—	—	—	—	17. Milltown.	
—	—	—	30	14	12	12	8	8	84	—	—	—	—	—	—	—	—	—	—	—	18. Oranmore.	
—	—	2	60	30	29	12	15	13	161	—	—	—	—	—	—	—	—	—	—	—	19. Oughterard.	
—	—	1	1	3	3	2	3	1	14	—	—	—	—	—	—	—	—	—	—	—	20. Roundstone.	
—	—	—	24	10	12	2	2	2	52	—	—	—	—	—	—	—	—	—	—	—	21. Spiddle.	
—	—	—	205	129	130	71	50	31	616	—	—	—	—	—	—	—	—	—	—	—	22. Tuam.	
—	—	—	12	7	9	4	4	4	40	—	—	—	—	—	—	—	—	—	—	—	23. Williamstown.	
4	—	55	871	644	715	284	238	185	2,996	1	1	1	1	1	1	—	—	—	6	—	Total for W. R. County Galway.	
																					14 Petty Sessional Districts of the E. R. County, viz.:—	GALWAY, East Riding.
—	—	—	31	8	38	8	5	4	94	—	—	—	—	—	—	—	—	—	—	—	1. Ahaseragh.	
—	—	3	36	44	41	16	12	9	161	—	—	—	—	—	—	—	—	—	—	—	2. Athenry.	
—	—	2	24	24	24	3	2	2	81	—	—	—	—	—	—	—	—	—	—	—	3. Ballymore.	
—	—	76	302	279	97	85	78	72	989	—	—	—	—	—	—	—	—	—	—	—	4. Ballinasloe.	
—	—	9	64	65	47	21	21	17	244	—	—	—	—	—	—	—	—	—	—	—	5. Ballygar.	
—	—	12	35	40	49	36	24	—	196	—	—	—	—	—	—	—	—	—	—	—	6. Eyrecourts.	
—	—	1	1	1	1	1	1	1	7	—	—	—	—	—	—	—	—	—	—	—	7. Gurteen.	
—	—	—	88	48	68	15	13	11	243	—	—	—	—	—	—	—	—	—	—	—	8. Kill more.	
—	—	—	19	3	34	11	4	4	75	—	—	—	—	—	—	—	—	—	—	—	9. Laurencetown.	
—	—	4	30	36	40	36	30	—	176	—	—	—	—	—	—	—	—	—	—	—	10. Loughrea.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11. Marblehill.	
—	—	11	70	84	90	26	33	22	336	—	—	—	—	—	—	—	—	—	—	—	12. Mountbellewbridge	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13. Mountshannon.	
—	—	4	61	29	38	10	6	6	154	—	—	—	—	—	—	—	—	—	—	—	14. Portumna.	
—	—	122	761	661	565	268	229	148	2,756	—	—	—	—	—	—	—	—	—	—	—	Total for E. R. County Galway.	
																					23 Petty Sessional Districts of the County, viz.:—	KERRY.
—	—	1	1	1	1	1	1	1	7	—	—	—	—	—	—	—	—	—	—	1	1. Annascaul.	
—	—	1	7	5	13	7	9	9	51	—	—	—	—	—	—	—	—	—	—	5	2. Ballylongford.	
—	—	5	12	18	100	12	13	7	167	—	—	—	—	—	—	—	—	—	—	—	3. Cahirciveen.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Cahirdaniel.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5. Castleisland.	
—	—	1	28	14	26	19	15	—	103	—	—	—	—	—	—	—	—	—	—	—	6. Causeway.	
—	—	1	8	—	22	3	4	5	43	—	—	—	—	—	—	—	—	—	—	—	7. Coolmagort.	
—	—	—	45	12	60	15	16	16	164	—	—	—	—	—	—	—	—	—	—	4	8. Castlegregory.	
—	—	8	4	6	28	8	6	8	68	—	—	—	—	—	—	—	—	—	—	2	9. Dingle.	
—	—	3	36	21	78	45	27	21	231	—	—	—	—	—	—	—	—	—	—	2	10. Gunsboro'.	
—	—	7	112	16	148	25	25	25	358	—	—	—	—	—	—	—	—	—	—	4	11. Kenmare.	
—	—	21	109	39	319	57	51	49	645	—	—	—	—	—	—	—	—	—	—	26	12. Killarney.	
—	—	4	20	14	18	10	1	2	69	1	—	—	—	—	—	—	—	—	1	4	13. Killorglin.	
—	—	—	29	—	34	3	5	5	76	—	—	—	—	—	—	—	—	—	—	3	14. Kilpadder.	
—	—	14	32	23	199	66	66	66	466	—	—	—	—	—	—	—	—	—	—	11	15. Listowell.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16. Miltown.	
—	—	—	1	1	2	2	1	1	8	—	—	—	—	—	—	—	—	—	—	—	17. Portmagee.	
—	—	—	26	7	23	7	7	7	77	—	—	—	—	—	—	—	—	—	—	2	18. Sneem.	
—	—	10	39	24	50	42	24	29	218	2	—	—	—	—	—	—	—	—	2	5	19. Tarbert.	
15	43	80	76	90	250	70	82	97	803	—	—	—	—	—	—	—	—	—	—	40	20. Tralee.	
—	—	—	1	1	6	3	1	1	13	—	—	—	—	—	—	—	—	—	—	—	21. Valentia.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22. Waterville.	
																					23. Name of District not stated, the Inspector being absent.	
15	43	156	586	292	1,376	395	354	350	3,567	3	—	—	—	—	—	—	—	—	3	109	Total for County Kerry.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.															
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lb.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
KILDARE -	14 Petty Sessional Districts of the County, viz.:—																	
	1. Athy - - -	51	24	55	61	60	84	92	75	60	48	33	31	15	—	—	—	689
	2. Ballymore -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Carberry - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4. Castledermot -	60	75	100	120	130	135	200	200	210	100	200	200	200	—	—	—	1,930
	5. Celbridge - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	6. Clane - -	No account kept.																
	7. Donadea - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Kilcullen - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9. Kildare - -	106	35	36	41	28	42	38	36	33	30	30	33	26	—	—	—	514
	10. Kilmeaghue -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Monasteevan -	94	21	35	38	32	37	36	32	33	30	29	30	28	—	—	—	475
	12. Nass - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Do. - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13. Newbridge -	60	28	27	26	27	27	27	29	27	27	28	27	26	—	—	—	386
	14. Rathanogan -	70	25	36	45	34	53	60	55	42	45	41	34	26	—	—	—	566
	Total for County Kildare -	441	208	289	331	311	378	453	427	405	280	361	355	321	—	—	—	4,560
KILKENNY -	17 Petty Sessional Districts of the County, viz.:—																	
	1. Ballyragget -	60	21	18	24	17	29	28	23	27	16	21	19	13	—	—	—	316
	2. Callan - -	113	41	65	71	55	77	79	75	60	67	50	42	38	—	—	—	833
	3. Castlecomer -	12	16	22	10	15	30	25	40	16	54	20	63	45	—	—	—	368
	4. Dunmore - -	12	9	10	4	16	12	7	8	5	6	4	4	6	—	—	—	103
	5. Freshford - -	30	17	22	19	15	23	26	27	23	25	16	25	21	—	—	—	289
	6. Gowran - -	60	30	25	20	26	21	24	19	28	17	19	16	11	—	—	—	316
	7. Goresbridge -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Graigue - -	167	45	43	36	44	46	45	35	27	24	22	18	10	—	—	—	562
	9. Johnstown -	112	70	44	32	38	37	40	41	46	38	42	40	39	—	—	—	619
	10. Kilkenny, City -	450	82	48	45	43	60	96	94	91	97	100	82	70	—	—	—	1,358
	11. Kilmacow - -	85	19	31	53	42	25	74	37	31	19	22	28	18	—	—	—	484
	12. Kilmaganny -	40	26	24	26	24	36	42	44	44	42	42	42	30	—	—	—	466
	13. Kilmanagh -	11	6	10	9	5	7	7	7	7	7	7	7	8	—	—	—	98
	14. Pilltown - -	94	21	24	49	29	31	35	29	26	26	27	15	15	—	—	—	421
	15. Rosbercon - -	194	69	66	56	54	50	49	48	39	40	37	36	35	—	—	—	773
	16. Stoneyford -	141	42	38	46	50	28	50	53	32	40	28	15	11	—	—	—	574
	17. Thomastown -	363	182	190	253	211	143	155	116	107	98	120	126	95	—	—	—	2,159
	Total for the County Kilkenny	1,944	696	680	753	684	655	782	696	607	620	577	578	467	—	—	—	9,742
KING'S COUNTY.	16 Petty Sessional Districts of the County, viz.:—																	
	1. Ballycumber -	15	4	8	16	9	11	17	17	16	14	14	13	13	—	—	—	167
	2. Banagher - -	95	35	30	25	30	26	23	23	33	23	40	20	—	—	—	—	403
	3. Clara - -	162	46	77	81	63	78	78	76	60	55	55	51	35	—	—	—	917
		3 weights of 3½ lbs. stamped.																
	4. Clonegowan -	19	15	18	12	13	17	14	20	16	11	12	9	12	—	—	—	188
	5. Edenderry -	78	32	51	56	37	57	60	56	50	40	44	36	21	—	—	—	618
	6. Fahy - -	13	12	13	14	5	28	28	28	28	28	28	28	26	—	—	—	279
	7. Ferbane - -	62	25	35	40	35	51	49	46	42	42	41	38	33	—	—	—	540
	8. Frankford -	58	23	40	41	36	42	43	41	35	30	28	30	18	—	—	—	465
	9. Kinnitty - -	68	18	26	28	30	36	34	34	30	30	30	30	30	—	—	—	424
	10. Moneygall -	52	22	32	25	24	23	30	27	23	27	21	27	25	—	—	—	358
	11. Moystown - -	20	3	16	19	8	16	19	21	17	14	14	17	13	—	—	—	197
	12. Parsonstown -	145	78	72	94	100	103	113	110	112	120	140	145	150	—	—	—	1,482
	13. Phillipstown -	61	30	38	40	29	37	42	37	35	31	27	27	25	—	—	—	459
	14. Shinrone - -	57	15	16	16	6	14	18	18	18	18	18	20	16	—	—	—	250
	15. Thomastown -	14	12	10	8	6	7	14	10	11	9	11	8	9	9	—	—	138
	16. Tullamore - -	220	58	123	131	97	136	167	142	126	109	102	93	63	—	—	—	1,567
		12 weights of 3½ lbs. stamped.																
	Total for County of King's County	1,139	428	606	646	528	682	749	706	652	601	625	592	489	9	—	—	8,452
LEITRIM -	13 Petty Sessional Districts of the County, viz.:—																	
	1. Ballinamore -	2	5	18	30	4	29	37	37	35	22	19	26	24	—	—	—	288
	2. Carrick-on-Shannon.	3	4	8	16	11	13	11	12	10	10	9	9	8	—	—	—	124
	3. Carrigallen -	29	6	13	22	13	19	20	17	13	13	20	20	12	—	—	—	217
	Cashcarrigan. *See* Kishcarrigan.																	
	4. Cloone - -	33	17	21	27	14	14	18	18	14	11	7	8	7	—	—	—	209
	5. Dromahaire -	24	26	28	32	22	28	33	31	29	29	27	30	29	—	—	—	368
	6. Dromod - -	5	2	14	16	12	9	14	12	14	13	14	13	12	—	—	—	150
	7. Drumkeeran -	36	23	33	36	8	13	43	43	39	38	35	34	32	—	—	—	413
	8. Drumsna - -	32	6	16	19	4	17	17	16	13	13	13	13	14	—	—	—	193
	9. Drumshambo -	21	7	15	14	12	11	14	12	5	7	4	7	2	—	—	—	131
	10. Kinlough - -	32	36	38	48	32	31	36	38	37	34	36	34	33	—	—	—	465
	11. Kishcarrigan -	15	2	7	8	3	5	8	7	6	9	7	4	3	—	—	—	84
	12. Manorhamilton -	41	23	55	61	29	41	65	60	55	50	47	46	33	—	—	—	606
	13. Mohill - -	40	23	66	81	35	93	107	89	71	69	58	65	61	—	—	—	858
	Total for the County Leitrim	313	180	332	410	199	323	423	492	341	318	296	309	270	—	—	—	4,106
LIMERICK	23 Petty Sessional Districts of the County, including the City of Limerick, viz.:—																	
	1. Abbeyfeale -	10	5	37	56	32	47	70	65	59	56	55	51	42	—	—	—	585
	2. Adare - -	7	3	8	14	12	13	19	17	14	13	14	12	9	—	—	—	155
	3. Askeaton - -	12	6	16	20	20	17	36	23	21	20	21	21	13	—	—	—	246
	4. Ballingarry -	13	6	24	31	12	28	36	25	33	21	23	15	15	—	—	—	292
	5. Ballyneety -	—	—	8	11	15	15	19	21	21	16	7	15	14	—	—	—	162
	6. Bruree - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	7. Bruff - -	7	7	30	40	36	37	36	52	53	48	38	36	29	—	—	—	469
	8. Castleconnel -	3	1	6	8	5	10	15	18	18	18	18	19	10	—	—	—	149
	9. Croom - -	46	30	43	48	39	49	63	57	39	39	39	37	27	—	—	—	556
	10. Foynes - -	15	7	17	21	23	24	29	27	22	25	23	26	8	—	—	—	267
	11. Galbally - -	—	6	7	10	8	12	13	10	12	8	14	17	10	—	—	—	127

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																			Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.									Measures for Dry Goods.												
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	½ Pint.	Gill.	½ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or ¼ Gall.	¼ Peck or ⅛ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
																					14 Petty Sessional Districts of the County, viz.:—	KILDARE.
—	—	2	15	32	45	26	15	16	151	—	—	—	—	—	—	—	—	—	—	1	1. Athy.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Ballymore.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3. Carberry.	
—	—	130	150	140	150	100	110	110	890	4	3	5	9	—	—	—	—	—	21	2	4. Castledermot.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5. Celbridge.	
No account kept.																					6. Clane.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Donadea.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Kilcullen.	
—	—	3	58	96	51	25	19	11	263	—	—	—	—	—	—	—	—	—	—	5	9. Kildare.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Kilmeaghue.	
—	—	1	90	73	79	17	18	16	294	—	—	—	—	—	—	—	—	—	—	7	11. Monasteevan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12. Naas.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Do.	
3	1	33	166	180	267	113	16	18	797	—	—	—	—	—	—	—	—	—	—	—	13. Newbridge.	
—	—	3	23	32	38	21	22	13	152	—	—	—	—	—	—	—	—	—	—	3	14. Rathanogan.	
3	1	172	502	553	630	302	200	184	2,547	4	3	5	9	—	—	—	—	—	21	18	Total for County of Kildare.	
																					17 Petty Sessional Districts of the County, viz.:—	KILKENNY.
—	—	2	26	23	18	12	15	6	102	—	—	—	—	—	—	—	—	—	—	—	1. Ballyragget.	
—	—	5	70	92	54	30	25	23	299	—	—	—	—	—	—	—	—	—	—	2	2. Callan.	
—	—	2	3	4	2	2	4	3	20	—	—	—	—	—	—	—	—	—	—	1	3. Castlecomer.	
—	—	—	16	8	20	10	4	—	58	—	—	—	—	—	—	—	—	—	—	—	4. Dunmore.	
—	—	2	52	36	33	21	10	7	161	—	—	—	—	—	—	—	—	—	—	3	5. Freshford.	
—	—	4	70	65	56	30	20	18	263	—	—	—	—	—	—	—	—	—	—	—	6. Gowran.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Goresbridge.	
—	—	9	72	65	42	42	40	24	294	—	—	—	—	—	—	—	—	—	—	—	8. Graigue.	
—	—	14	20	24	40	24	26	18	166	—	—	—	—	—	—	—	—	—	—	—	9. Johnstown.	
15	20	41	52	72	101	150	104	61	616	—	—	—	—	—	—	—	—	—	—	20	10. Kilkenny, City.	
—	—	—	113	137	81	32	19	11	393	—	—	—	—	—	—	—	—	—	—	4	11. Kilmacow.	
—	—	—	64	60	44	12	9	9	198	—	—	—	—	—	—	—	—	—	—	—	12. Kilmanganny.	
—	—	3	23	25	10	5	5	4	75	—	—	—	—	—	—	—	—	—	—	2	13. Kilmanagh.	
—	1	1	123	119	26	12	10	10	302	—	—	—	—	—	—	—	—	—	—	2	14. Pilltown.	
—	—	6	84	92	98	8	6	8	302	—	—	—	—	—	—	—	—	—	—	2	15. Rosbercon.	
—	—	—	29	38	42	16	4	—	129	—	—	—	—	—	—	—	—	—	—	1	16. Stoneyford.	
—	—	10	121	285	204	37	28	26	711	—	—	—	—	—	—	—	—	—	—	—	17. Thomastown.	
15	21	99	938	1,145	871	443	329	228	4,089	—	—	—	—	—	—	—	—	—	—	37	Total for the County of Kilkenny.	
																					16 Petty Sessional Districts of the County, viz.:—	KING'S COUNTY.
—	—	—	—	6	6	4	7	3	26	—	—	—	—	—	—	—	—	—	—	—	1. Ballycumber.	
—	—	20	60	80	100	30	40	—	330	—	—	—	—	—	—	—	—	—	—	—	2. Banagher.	
—	—	4	23	29	44	23	31	6	160	1	1	1	—	—	—	—	—	—	3	1	3. Clara.	
—	—	7	10	5	5	6	8	10	51	—	—	—	—	—	—	—	—	—	—	1	4. Clonegowan.	
—	—	3	6	39	43	31	24	13	159	—	—	—	—	—	—	—	—	—	—	7	5. Edenderry.	
—	—	—	1	1	1	4	4	2	13	—	—	—	—	—	—	—	—	—	—	5	6. Fahy.	
—	—	1	69	35	45	33	27	22	232	—	—	—	—	—	—	—	—	—	—	10	7. Ferbane.	
—	—	3	15	12	29	14	17	17	107	—	—	—	—	—	—	—	—	—	—	3	8. Frankford.	
—	—	1	64	30	21	14	10	10	150	—	—	—	—	—	—	—	—	—	—	1	9. Kinnitty.	
—	—	—	30	4	18	13	8	6	79	—	—	—	—	—	—	—	—	—	—	—	10. Moneygall.	
—	—	—	—	—	—	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	11. Moystown.	
7	6	5	34	29	60	24	26	22	213	4	—	—	—	—	—	—	—	—	4	23	12. Parsonstown.	
2	5	20	32	29	33	25	22	17	185	—	—	—	—	—	—	—	—	—	—	2	13. Phillipstown.	
—	—	1	25	10	14	8	6	6	70	—	—	—	—	—	—	—	—	—	—	1	14. Shinrone.	
—	—	—	7	2	8	4	4	2	27	—	—	—	—	—	—	—	—	—	—	—	15. Thomastown.	
1	—	8	98	113	136	66	61	38	521	3	2	1	—	—	—	—	—	—	6	30	16. Tullamore.	
4 measures of 5 gallons stamped.																						
10	11	73	474	424	563	301	295	174	2,325	8	3	2	—	—	—	—	—	—	13	84	Total for County of King's County.	
																					13 Petty Sessional Districts of the County, viz.:—	LEITRIM.
—	—	2	3	9	7	12	14	15	62	—	—	—	—	—	—	—	—	—	—	9	1. Ballinamore.	
1	3	3	6	6	4	6	6	6	41	—	—	—	—	—	—	—	—	—	—	—	2. Carrick-on-Shannon.	
—	—	—	1	5	6	4	9	3	28	—	—	—	—	—	—	—	—	—	—	—	3. Carrigallen. Cashcarrigan. *See* Kishcarrigan.	
—	—	—	—	3	5	6	6	4	24	—	—	—	—	—	—	—	—	—	—	—	4. Cloone.	
—	—	—	—	2	8	8	9	7	34	—	—	—	—	—	—	—	—	—	—	2	5. Dromahaire.	
—	—	1	1	8	8	10	9	7	44	—	—	—	—	—	—	—	—	—	—	1	6. Dromod.	
—	—	5	2	12	15	14	15	15	78	—	—	—	—	—	—	—	—	—	—	4	7. Drumkeeran.	
—	—	4	3	11	20	10	11	9	68	1	1	1	—	—	—	—	—	—	3	1	8. Drumsna.	
—	—	1	4	13	13	12	20	18	81	—	—	—	—	—	—	—	—	—	—	1	9. Drumshambo.	
—	—	2	2	7	9	14	13	14	61	—	—	—	—	—	—	—	—	—	—	5	10. Kinlough.	
—	—	—	—	2	5	5	5	—	17	—	—	—	—	—	—	—	—	—	—	—	11. Kishcarrigan.	
—	—	5	6	13	17	21	20	20	102	—	—	—	—	—	—	—	—	—	—	17	12. Manorhamilton.	
—	—	8	5	16	29	31	24	22	135	—	—	9	9	—	—	—	—	—	18	22	13. Mohill.	
1	3	31	33	107	146	153	161	140	775	1	1	10	9	—	—	—	—	—	21	62	Total for the County of Leitrim.	
																					23 Petty Sessional Districts of the County, including the City of Limerick, viz.:—	LIMERICK.
—	—	—	111	5	202	28	27	24	397	—	—	—	—	—	—	—	—	—	—	—	1. Abbeyfeale.	
—	—	—	15	6	29	2	7	5	64	—	—	—	—	—	—	—	—	—	—	—	2. Adare.	
—	—	2	30	4	39	10	9	3	97	—	—	—	—	—	—	—	—	—	—	—	3. Askeaton.	
—	—	6	92	12	172	15	17	15	329	—	—	—	—	—	—	—	—	—	—	—	4. Ballingarry.	
—	—	—	65	3	135	23	18	23	267	—	—	—	—	—	—	—	—	—	—	—	5. Ballyneety.	
—	—	—	8	—	5	—	—	—	13	—	—	—	—	—	—	—	—	—	—	—	6. Bruree.	
—	—	2	95	3	203	19	32	19	373	—	—	—	—	—	—	—	—	—	—	—	7. Bruff.	
—	—	1	21	4	52	13	12	13	116	—	—	—	—	—	—	—	—	—	—	—	8. Castleconnel.	
—	—	5	94	6	182	16	18	9	330	—	—	—	—	—	—	—	—	—	—	—	9. Croom.	
—	—	2	22	8	27	7	7	7	80	—	—	—	—	—	—	—	—	—	—	—	10. Foynes.	
—	—	1	40	10	60	14	12	—	137	—	—	—	—	—	—	—	—	—	—	—	11. Galbally.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.															
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
LIMERICK—*cont.*	12. Glin	—	1	4	8	6	8	13	10	—	9	10	13	10	—	—	—	92
	13. Hospital	4	3	10	14	8	14	22	22	21	21	21	24	14	—	—	—	198
	14. Kilfinane	1	—	3	10	11	13	25	27	20	18	17	17	14	1	—	—	177
	15. Kilmallock	32	8	6	12	15	19	26	22	18	19	20	17	12	—	—	—	226
	16. Limerick, City	153	104	413	413	340	156	265	225	162	96	76	50	55	—	—	—	2,508
	17. Do. Petty Sessional.	21	15	14	13	13	14	16	13	15	7	15	11	9	—	—	—	176
	18. Murroe	—	—	1	2	2	3	3	3	3	3	3	3	3	3	—	—	32
	19. Newcastle	20	24	55	51	39	49	69	58	63	58	53	59	47	—	—	—	645
	20. Newpallas	2	5	18	29	24	30	42	46	39	42	41	43	27	—	—	—	388
	21. Pallas Kenry	24	10	37	35	33	40	84	76	77	60	65	58	47	—	—	—	646
	22. Patrickswell	—	1	3	5	5	6	9	12	12	3	12	11	12	—	—	—	91
	23. Rathkeale	17	12	33	39	34	42	45	33	38	14	14	9	4	—	—	—	334
	Total for the County of Limerick	394	255	795	890	732	646	975	862	760	614	599	564	431	4	—	—	8,521
LONDONDERRY	15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—																	
	1. Bellaghy	8	5	10	11	8	17	19	16	16	16	16	17	13	—	—	—	172
	2. Claudy	78	31	63	81	23	54	69	69	69	69	69	69	69	—	—	—	813
	3. Coleraine	116	46	94	121	34	81	105	105	105	105	105	105	105	—	—	—	1,227*
	4. Draper's Town	29	11	25	29	24	28	35	27	28	29	23	25	20	—	—	—	333
	5. Dungiven	No record.																
	6. Eglington	27	9	29	34	27	16	39	43	46	31	37	44	36	—	—	—	418
	7. Garvagh	27	12	34	33	3	42	50	50	50	50	50	50	50	—	—	—	501
	8. Innisrush	No record kept.																
	9. Kilrea	—	2	12	16	14	17	25	25	20	20	20	15	15	—	—	—	201
	10. Londonderry, City	1,182	304	315	403	206	343	500	285	211	303	234	314	283	—	—	—	4,883
	11. Do. Petty Sessional.	31	20	26	24	30	36	50	56	60	40	34	30	32	—	—	—	469
	12. Maghera	No record kept.																
	13. Magherafelt	40	14	20	24	—	30	40	44	46	50	50	56	40	—	—	—	454
	14. Moneymore	4	5	3	10	10	10	24	9	10	15	13	7	5	6	14	10	155
	15. Newtonlimavady	116	51	65	59	24	87	56	50	62	56	68	53	60	—	—	—	807
	Total for the County Londonderry	1,658	510	696	845	403	761	1,012	779	723	784	719	785	728	6	14	10	10,433
LONGFORD	11 Petty Sessional Districts of the County, viz.:—																	
	1. Ballinalee	13	4	8	9	10	14	12	12	11	10	9	9	7	—	—	—	128
	2. Ballynamuck	20	26	20	14	4	12	13	18	10	7	11	9	6	—	—	—	170
	3. Ballymahon	94	23	30	40	41	44	45	34	33	33	33	34	30	—	—	—	514
	4. Carrickboy	60	40	20	13	11	23	23	23	23	23	23	23	23	—	—	—	328
	5. Drumlish	5	4	8	10	4	8	14	16	14	14	10	12	—	—	—	—	119
	6. Edgeworthstown	43	15	30	33	29	36	40	38	35	34	24	31	26	—	—	—	414
	7. Granard	No record kept.																
	8. Kenagh	23	11	12	12	12	12	12	11	11	11	11	11	11	—	—	—	160
	9. Lanesboro'	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10. Longford, Town	238	149	145	128	56	164	152	142	131	131	131	142	132	—	—	—	1,841
	11. Newtownforbes	14	8	10	15	15	15	20	20	20	20	20	20	6	—	—	—	203
	Total for the County Longford	510	280	283	274	182	328	331	314	288	283	272	291	241	—	—	—	3,877
LOUTH	10 Petty Sessional Districts of the County, viz.:—																	
	1. Ardee	69	28	50	55	20	36	72	53	53	52	50	50	45	—	—	—	633
	2. Carlingford	40	13	40	50	21	33	93	70	77	64	71	66	41	—	—	—	679
	3. Castlebellingham	125	27	33	37	30	32	28	25	23	23	23	23	23	—	—	—	452
	4. Collon	58	19	22	21	17	22	21	17	15	16	14	16	10	—	—	—	268
	5. Dundalk	186	48	63	65	38	46	60	41	34	34	27	20	16	—	—	—	687
	6. Dunleer	53	17	19	24	16	33	44	34	31	31	26	19	19	—	—	—	366
	7. Louth	18	4	6	6	7	10	5	6	6	3	5	3	4	—	—	—	83
	8. Mell	133	47	77	81	32	69	116	107	72	46	49	49	39	—	—	—	917
	9. Ravensdale	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10. Termonfeckin	27	12	18	20	13	20	27	29	22	23	21	17	15	—	—	—	264
	Total for the County Louth	729	215	328	359	194	301	466	382	333	292	286	272	212	—	—	—	4,349
MAYO	24 Petty Sessional Districts of the County, viz.:—																	
	1. Achill	10	15	20	30	35	28	45	31	46	31	55	5	6	—	—	—	357
	2. Balla	10	9	20	21	20	24	30	35	27	32	35	38	25	—	—	—	326
	3. Ballaghadereen	40	40	40	40	50	60	100	100	100	120	120	120	120	—	—	—	1,050
	4. Ballina	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5. Ballindine	26	14	16	11	—	—	12	12	10	11	10	11	12	—	—	—	145
	6. Ballinrobe	34	21	28	41	21	16	32	21	26	32	27	27	13	—	—	—	339
	7. Ballycastle	58	11	23	26	19	19	25	26	23	21	18	28	27	—	—	—	324
	8. Ballycroy	10	8	8	8	10	8	6	8	8	4	4	4	2	—	—	—	88
	9. Ballyglass	16	1	5	5	3	5	5	4	3	3	3	3	3	—	—	—	59
	10. Ballyhannis	118	160	200	230	300	358	400	405	405	500	500	512	512	—	—	—	4,600
	11. Belmullett	88	40	38	36	34	32	20	30	24	26	20	15	10	—	—	—	413
	12. Castlebar	No record kept.																
	13. Claremorris	18	4	7	9	8	10	15	12	12	12	15	9	3	—	—	—	134
	14. Cong	37	13	14	21	9	16	20	20	14	12	15	15	15	—	—	—	221
	15. Crossmolina	No record kept.																
	16. Foxford	No record kept.																
	17. Hollymount	25	7	13	12	13	16	16	18	13	13	12	11	9	—	—	—	178
	18. Killihane	Return left blank.																
	19. Killala	No record kept.																
	20. Kilmain	19	4	11	18	9	11	29	26	23	17	16	16	11	—	—	—	210

* The *total number* only of weights stamped, being stated in the Return from the Local Inspector, and not the several denominations, an *estimated* and *average* number of the latter is here inserted.

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																		Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.									Measures for Dry Goods.											
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qt.	Pint.	¼ Pint.	Gill.	½ Gill.	Total.	Bushel.	½ Bushel.	Peck.	¼ Peck or Gallon.	½ Peck or ¼ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
—	—	—	5	—	15	4	5	5	34	—	—	—	—	—	—	—	—	—	—	—	12. Glin.	LIMERICK —*cont.*
—	—	1	52	4	92	11	15	2	177	—	—	—	—	—	—	—	—	—	—	—	13. Hospital.	
—	—	—	78	5	103	10	8	9	213	—	—	—	—	—	—	—	—	—	—	—	14. Kilfinane.	
—	—	1	36	7	92	22	9	9	176	—	—	—	—	—	—	—	—	—	—	—	15. Kilmallock.	
—	4	25	34	38	95	31	28	29	284	—	—	—	—	—	—	—	—	—	—	—	16. Limerick, City.	
—	—	9	117	71	325	129	35	18	704	—	—	—	—	—	—	—	—	—	—	—	17. Ditto Petty Sessional.	
—	—	—	1	—	6	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	18. Murroe.	
—	—	10	60	13	168	22	25	26	324	—	—	—	—	—	—	—	—	—	—	—	19. Newcastle.	
—	—	2	67	4	140	22	25	19	279	—	—	—	—	—	—	—	—	—	—	—	20. Newpallas.	
—	—	10	81	17	115	14	18	19	274	—	—	—	—	—	—	—	—	—	—	—	21. Pallas Kenry.	
—	—	—	42	6	66	8	9	9	140	—	—	—	—	—	—	—	—	—	—	—	22. Patrickswell.	
—	—	13	43	36	114	33	21	10	270	—	—	—	—	—	—	—	—	—	—	—	23. Rathkeale.	
—	4	93	1,209	262	2,437	453	357	273	5,088	—	—	—	—	—	—	—	—	—	—	—	Total for the County of Limerick.	
																					15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—	LONDONDERRY.
—	—	—	1	2	2	4	4	8	21	—	—	—	—	—	—	—	—	—	—	—	1. Bellaghy.	
—	—	7	12	14	26	30	36	36	161	—	—	—	—	—	—	—	—	—	—	14	2. Claudy.	
5	1	14	12	19	27	34	44	43	199	1	—	1	—	—	—	—	—	—	2	—	3. Coleraine.	
—	—	6	5	16	21	48	65	35	196	—	—	2	2	—	—	—	—	—	4	7	4. Draper's Town.	
No record.																					5. Dungiven.	
—	—	4	7	9	11	16	19	22	88	5	3	2	2	—	—	—	—	—	12	5	6. Eglington.	
—	—	—	3	5	9	14	7	8	46	6	—	1	—	—	—	—	—	—	7	2	7. Garvagh.	
No record kept.																					8. Innisrush.	
—	—	—	—	—	—	—	—	—	—	3	1	1	—	—	—	—	—	—	5	3	9. Kilrea.	
13	12	21	19	39	58	74	82	91	409	19	19	—	—	—	—	—	—	—	38	55	10. Londonderry, City.	
—	—	2	8	8	12	20	20	22	92	—	—	—	—	—	—	—	—	—	—	—	11. Ditto Petty Sessional.	
No record kept.																					12. Maghera.	
—	2	6	10	12	18	20	20	30	118	3	—	14	14	—	—	—	—	—	31	6	13. Magherafelt.	
—	—	—	—	1	1	1	1	—	4	—	—	—	—	—	—	—	—	—	—	1	14. Moneymore.	
1	—	6	12	12	14	17	17	19	98	—	—	—	—	—	—	—	—	—	—	—	15. Newtonlimavady.	
19	15	66	89	137	199	278	315	314	1,432	37	23	21	18	—	—	—	—	—	99	93	Total for the County of Londonderry.	
																					11 Petty Sessional Districts of the County, viz.:—	LONGFORD.
—	—	1	1	6	6	9	7	5	35	—	—	1	1	—	—	—	—	—	2	1	1. Ballinalee.	
—	—	4	5	7	7	7	7	6	43	—	—	—	—	—	—	—	—	—	—	—	2. Ballynamuck.	
1	1	8	4	38	50	33	34	27	196	—	—	—	—	—	—	—	—	—	—	6	3. Ballymahon.	
—	—	—	—	8	10	4	3	1	26	—	—	—	—	—	—	—	—	—	—	1	4. Carrickboy.	
—	—	2	—	6	11	5	9	3	36	—	—	—	—	—	—	—	—	—	—	—	5. Drumlish.	
—	—	—	—	6	8	4	5	—	23	—	—	3	3	—	—	—	—	—	6	4	6. Edgeworthstown.	
No record kept.																					7. Granard.	
—	—	—	6	10	10	10	10	10	56	—	—	—	—	—	—	—	—	—	—	—	8. Kenagh.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Lanesboro'.	
2	7	7	14	212	265	159	150	200	1,016	2	4	6	6	—	—	—	—	—	18	40	10. Longford, Town.	
—	—	7	14	28	28	28	35	35	175	—	—	—	—	—	—	—	—	—	—	—	11. Newtownforbes.	
3	8	29	44	321	395	259	260	287	1,606	2	4	10	10	—	—	—	—	—	26	52	Total for the County of Longford.	
																					10 Petty Sessional Districts of the County, viz.:—	LOUTH.
—	—	3	4	70	62	47	29	28	243	1	—	—	—	—	—	—	—	—	1	4	1. Ardee.	
—	—	1	1	17	23	33	39	23	137	1	1	1	—	—	—	—	—	—	3	1	2. Carlingford.	
—	—	3	3	79	58	40	36	24	243	—	—	—	—	—	—	—	—	—	—	3	3. Castlebellingham.	
—	—	—	2	29	21	17	20	10	99	1	—	—	—	—	—	—	—	—	1	1	4. Collon.	
10	14	20	16	15	16	16	14	13	134	8	7	3	3	2	1	—	—	—	24	70	5. Dundalk.	
—	—	—	—	29	24	15	14	16	98	—	—	—	—	—	—	—	—	—	—	—	6. Dunleer.	
—	—	—	10	24	18	6	13	9	80	—	—	—	—	—	—	—	—	—	—	—	7. Louth.	
—	—	5	1	75	44	39	55	30	249	2	1	2	—	—	—	—	—	—	5	13	8. Mell.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Ravensdale.	
—	—	—	—	20	15	16	15	10	76	—	—	—	—	—	—	—	—	—	—	—	10. Termonfeckin.	
10	14	34	37	356	281	229	235	163	1,359	13	9	6	3	2	1	—	—	—	34	92	Total for the County of Louth.	
																					24 Petty Sessional Districts of the County, viz.:—	MAYO.
—	—	5	6	6	6	8	10	12	53	—	—	—	—	—	—	—	—	—	—	—	1. Achill.	
—	—	2	56	35	30	20	17	20	180	—	—	—	—	—	—	—	—	—	—	4	2. Balla.	
1	1	6	8	40	80	80	80	—	296	—	—	—	—	—	—	—	—	—	—	40	3. Ballaghadereen.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Ballina.	
—	—	5	19	20	14	12	16	18	104	—	—	—	—	—	—	—	—	—	—	—	5. Ballindine.	
—	—	—	37	21	32	9	3	—	102	—	—	—	—	—	—	—	—	—	—	1	6. Ballinrobe.	
—	—	2	4	9	9	8	9	9	50	—	—	—	—	—	—	—	—	—	—	2	7. Ballycastle.	
—	—	—	—	1	1	1	1	—	4	—	—	—	—	—	—	—	—	—	—	2	8. Ballycroy.	
—	—	—	3	2	3	1	1	1	11	—	—	—	—	—	—	—	—	—	—	—	9. Ballyglass.	
—	—	6	6	15	32	43	48	45	195	—	—	—	—	—	—	—	—	—	—	15	10. Ballyhannis.	
—	—	6	12	28	23	24	28	23	144	—	—	—	—	—	—	—	—	—	—	—	11. Belmullett.	
No record kept.																					12. Castlebar.	
—	—	1	16	16	20	9	4	3	69	—	—	—	—	—	—	—	—	—	—	—	13. Claremorris.	
—	—	—	42	8	30	10	11	11	112	—	—	—	—	—	—	—	—	—	—	2	14. Cong.	
No record kept.																					15. Crossmolina.	
No record kept.																					16. Foxford.	
—	—	—	62	25	23	14	11	7	142	—	—	—	—	—	—	—	—	—	—	1	17. Hollymount.	
Return left blank.																					18. Killihane.	
No record kept.																					19. Killala.	
—	—	—	97	11	30	10	10	5	163	—	—	—	—	—	—	—	—	—	—	—	20. Kilmain.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.																
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	3 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
MAYO—*cont.*	21. Louisburgh	27	3	25	22	9	1	18	21	17	18	17	23	15	—	—	—	216
	22. Lowpark	32	12	50	75	31	36	80	56	47	43	37	38	23	—	—	—	560
	23. Swinford	No record kept.																
	24. Westport	130	15	25	25	25	15	50	25	25	25	25	25	—	—	—	—	410
	Total for the County of Mayo	698	377	543	630	596	655	903	850	823	920	929	900	806	—	—	—	9,630
MEATH, WEST.	*See* Westmeath																	
MEATH	18 Petty Sessional Districts of the County, including the Town and County of Drogheda, viz.:—																	
	1. Athboy	59	21	24	30	19	34	30	32	30	24	17	25	12	—	—	—	357
	2. Ballivor	14	5	15	14	7	14	20	16	5	14	14	12	13	—	—	—	163
	3. Crossakiel	35	30	23	19	20	28	34	28	20	28	25	22	24	22	—	—	358
	4. Drogheda, Town	516	177	316	305	221	320	380	339	271	217	154	105	76	—	—	—	3,397
	5. Drumconrath	33	11	24	31	10	13	28	27	21	18	17	21	12	—	—	—	266
	6. Duleek	71	29	49	52	19	48	65	59	50	47	42	46	38	—	—	—	615
	7. Dunboyne	26	20	28	31	26	33	33	35	32	31	34	33	30	—	—	—	392
	8. Dunshaughlin	43	18	31	43	28	43	45	44	41	44	41	43	34	—	—	—	498
	9. George's Cross	14	7	26	8	—	16	20	8	20	16	18	20	16	—	—	—	189
	10. Julianstown	51	19	21	22	19	32	43	38	27	27	30	28	25	—	—	—	382
	11. Kells	63	40	70	80	87	72	76	73	65	75	80	70	65	—	—	—	916
	12. Longwood	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13. Moynalty	15	8	15	23	16	31	33	25	22	30	27	29	22	—	—	—	296
	14. Navan	10	2	4	3	2	3	5	4	4	4	3	3	3	—	—	—	50
	15. Oldcastle	26	16	32	44	29	43	43	41	33	33	26	25	11	—	—	—	402
	16. Slane	No record kept.																
	17. Summerhill	35	17	26	30	24	35	47	40	40	43	42	43	27	—	—	—	449
	18. Trim	160	52	77	77	65	76	84	75	63	53	50	48	34	—	—	—	914
	Total for the County of Meath	1,169	474	781	812	592	841	986	884	744	704	620	573	442	22	—	—	9,644
MONAGHAN	8 Petty Sessional Districts of the County, viz.:—																	
	1. Ballybay	45	32	39	44	2	41	40	30	19	18	18	18	19	—	—	—	365
	2. Carrickmacross	61	35	53	59	14	77	101	90	84	80	78	84	—	—	—	—	826
	3. Castleblayney	29	26	42	49	8	29	63	29	46	50	63	—	—	—	—	—	434
	4. Clones	8	3	8	32	—	17	31	31	30	27	23	—	—	—	—	—	210
	5. Emyvale	—	3	11	21	3	16	20	17	15	14	14	15	11	—	—	—	160
	6. Monaghan	58	25	24	40	35	31	52	39	34	30	29	28	23	—	—	—	448
	7. Newbliss	22	12	11	9	—	9	9	6	6	6	6	6	6	—	—	—	108
	8. Rockcorry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Total for the County Monaghan	223	136	188	254	72	220	316	242	234	225	231	151	59	—	—	—	2,551
QUEEN'S COUNTY.	16 Petty Sessional Districts of the County, viz.:—																	
	1. Abbeyleix	119	33	52	33	56	85	66	69	64	54	48	38	24	—	—	—	741
	2. Ballacolla	9	8	6	9	7	9	10	10	9	9	9	8	8	—	—	—	111
	3. Ballybrittas	8	9	16	20	18	19	21	20	19	19	19	18	16	—	—	—	222
	4. Ballylinan	97	30	31	33	38	49	40	37	36	34	31	27	23	—	—	—	506
	5. Borris-in-Ossory	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	6. Castletown and Coolrain.	10	2	8	10	4	9	10	10	9	9	5	13	8	—	—	—	107
	7. Carlow-Graigue	73	20	31	30	23	31	39	34	32	24	27	27	15	—	—	—	406
	8. Clonaslee	11	5	11	12	5	15	15	13	12	9	12	9	4	—	—	—	133
	9. Durrow	73	30	36	37	28	31	27	28	23	22	18	19	18	—	—	—	390
	10. Maryboro'	200	200	220	220	220	240	240	240	240	240	240	240	240	—	—	—	2,980
	11. Mountmellick	249	50	52	63	37	52	30	44	30	27	40	36	49	—	—	—	759
	12. Mountrath	100	35	67	72	65	70	86	79	67	59	50	46	40	—	—	—	836
	13. Portarlington	84	96	45	27	29	31	31	31	30	31	34	36	24	—	—	—	529
	14. Rathdowney	101	52	64	63	51	65	69	60	52	49	48	44	44	—	—	—	762
	15. Stradbally	54	19	33	28	25	37	36	40	27	31	27	30	17	—	—	—	404
	16. Timahoe	20	5	7	7	7	8	10	10	8	9	9	8	7	—	—	—	115
	Total for County of Queen's County	1,218	594	679	664	613	751	730	725	658	626	627	599	537	—	—	—	9,001
ROSCOMMON	22 Petty Sessional Districts of the County, viz.:—																	
	1. Athlone	No account kept.																
	2. Ballinasloe	43	11	9	9	7	14	18	13	14	8	5	6	4	—	—	—	161
	3. Ballintobber	30	12	18	12	13	12	16	15	15	13	18	14	12	—	—	—	200
	4. Ballinlough	38	15	20	21	16	19	16	17	16	14	15	14	17	—	—	—	238
	5. Ballyfarnon	—	—	—	2	—	1	2	2	2	2	2	2	2	—	—	—	17
	6. Ballyforan	—	—	1	1	1	1	1	1	1	1	1	1	1	—	—	—	11
	7. Belanagare	9	1	11	11	2	10	15	17	13	11	10	13	5	—	—	—	128
	8. Boyle	55	14	21	17	11	22	32	29	24	21	19	10	7	—	—	—	282
	9. Brideswell	9	7	8	10	—	12	11	8	6	9	10	9	6	—	—	—	105
	10. Castlerea	83	45	62	65	39	69	88	86	73	64	50	56	47	—	—	—	827
	11. Coolderry	9	12	13	15	4	12	18	12	10	8	10	10	11	—	—	—	144
	12. Cootehall	4	4	4	3	2	4	5	4	5	5	6	6	5	—	—	—	57
	13. Croghan	7	4	5	6	2	10	10	9	9	8	10	9	11	—	—	—	100
	14. Elphin	95	38	50	45	44	77	81	84	73	54	58	63	62	—	—	—	824
	15. Frenchpark	108	26	36	32	30	30	41	38	31	32	31	32	26	—	—	—	493
	16. Keadue	8	8	7	6	4	5	12	12	9	8	8	6	4	—	—	—	97
	17. Kilmore	8	4	4	6	5	10	12	4	2	8	10	4	3	—	—	—	80
	18. Lecarrow	—	—	—	2	—	5	6	6	5	6	2	1	1	—	—	—	34
	19. Roscommon	17	10	19	20	9	18	16	12	14	17	6	7	8	—	—	—	173
	20. Ruskey	13	9	17	18	13	14	24	24	19	23	23	23	23	—	—	—	243
	21. Strokestown	44	23	49	54	29	58	79	69	68	53	42	59	48	—	—	—	675
	22. Tulsk	4	12	22	24	12	26	28	28	26	28	32	28	28	—	—	—	298
	Total for the County Roscommon	584	255	376	379	243	429	531	490	435	393	368	373	331	—	—	—	5,187

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																										
Liquid Measures.									Measures for Dry Goods.										Measures of Length.	District, City, Town, &c.	County.
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qt.	Pint.	½ Pint.	Gill.	¼ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or ¼ Gall.	¼ Peck or ⅛ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
—	—	2	10	5	15	7	9	7	55	—	—	—	—	—	—	—	—	—	—	3	21. Louisburgh.	MAYO—*cont.*
—	—	4	6	17	19	19	24	17	106	—	—	—	—	—	—	—	—	—	—	6	22. Lowpark.	
								No record kept.													23. Swinford.	
—	1	4	30	60	60	15	15	15	200	—	—	—	—	—	—	—	—	—	—	—	24. Westport.	
1	2	43	414	319	427	290	297	193	1,986	—	—	—	—	—	—	—	—	—	—	76	Total for the County of Mayo.	
																					MEATH, WEST. *See* Westmeath.	
																					18 Petty Sessional Districts of the County, including the Town and County of Drogheda, viz.:—	MEATH.
—	—	4	6	23	19	22	26	13	113	—	—	—	—	—	—	—	—	—	—	7	1. Athboy.	
—	—	2	6	13	12	3	6	4	46	—	—	—	—	—	—	—	—	—	—	3	2. Ballivor.	
—	—	2	2	30	24	18	26	26	128	—	—	—	—	—	—	—	—	—	—	4	3. Crossakiel.	
2	—	16	41	262	201	158	165	94	939	3	8	13	21	—	—	—	—	—	45	—	4. Drogheda, Town.	
—	—	1	—	16	10	7	5	6	45	—	—	—	—	—	—	—	—	—	—	—	5. Drumconrath.	
—	—	1	12	111	41	25	31	19	240	—	—	—	—	—	—	—	—	—	—	6	6. Duleek.	
—	—	4	78	116	122	26	22	18	386	—	—	—	—	—	—	—	—	—	—	3	7. Dunboyne.	
—	—	4	44	113	79	23	46	22	331	—	—	—	—	—	—	—	—	—	—	4	8. Dunshaughlin.	
—	—	1	16	12	6	9	6	8	58	—	—	—	—	—	—	—	—	—	—	—	9. George's Cross.	
—	—	—	19	96	41	27	21	14	218	—	—	—	—	—	—	—	—	—	—	2	10. Julianstown.	
—	—	46	47	50	70	75	80	65	433	—	—	—	—	—	—	—	—	—	—	6	11. Kells.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12. Longwood.	
—	—	2	2	21	24	20	24	12	105	—	—	—	—	—	—	—	—	—	—	—	13. Moynalty.	
—	—	—	—	4	4	2	2	3	15	—	—	—	—	—	—	—	—	—	—	—	14. Navan.	
—	—	4	6	11	20	27	30	20	118	—	—	—	—	—	—	—	—	—	—	3	15. Oldcastle.	
								No record kept.													16. Slane.	
—	—	9	9	27	8	13	13	5	84	—	—	—	—	—	—	—	—	—	—	—	17. Summerhill.	
—	—	3	16	54	72	52	48	25	270	1	—	—	—	—	—	—	—	—	1	6	18. Trim.	
2	—	109	304	959	753	508	550	534	3,529	4	8	13	21	—	—	—	—	—	46	44	Total for the County of Meath.	
																					8 Petty Sessional Districts of the County, viz.:—	MONAGHAN.
—	2	3	9	10	10	21	21	19	95	—	—	13	13	—	—	—	—	—	26	4	1. Ballybay.	
—	—	4	16	45	54	61	—	—	180	4	—	14	14	—	—	—	—	—	32	5	2. Carrickmacross.	
12	14	11	6	8	12	20	28	14	125	16	12	16	18	—	—	—	—	—	62	9	3. Castleblayney.	
—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	2	—	4. Clones.	
—	—	—	—	4	6	6	5	5	26	1	—	—	—	—	—	—	—	—	1	1	5. Emyvale.	
—	—	—	—	—	—	—	—	—	—	—	—	8	8	—	—	—	—	—	16	2	6. Monaghan.	
—	—	—	—	—	—	—	—	—	—	2	—	4	—	—	—	—	—	—	6	—	7. Newbliss.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Rockcorry.	
12	16	18	31	67	82	108	54	38	426	25	12	55	53	—	—	—	—	—	145	21	Total for the County Monaghan.	
																					16 Petty Sessional Districts of the County, viz.:—	QUEEN'S COUNTY.
—	—	8	30	59	77	42	37	21	274	—	—	—	—	—	—	—	—	—	—	10	1. Abbeyleix.	
—	—	—	4	8	10	4	6	4	36	—	—	—	—	—	—	—	—	—	—	1	2. Ballacolla.	
—	—	—	34	16	13	5	5	4	77	—	—	—	—	—	—	—	—	—	—	4	3. Ballybrittas.	
—	—	1	21	27	26	20	14	12	121	—	—	—	—	—	—	—	—	—	—	1	4. Ballylinan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5. Borris-in-Ossory.	
—	—	—	12	8	17	3	6	4	50	—	—	—	—	—	—	—	—	—	—	—	6. Castletown and Coolrain.	
—	—	—	16	11	49	16	15	9	116	—	—	—	—	—	—	—	—	—	—	—	7. Carlow-Graigue.	
—	—	1	18	2	4	4	3	2	34	—	—	—	—	—	—	—	—	—	—	—	8. Clonaslee.	
—	—	—	19	15	10	3	3	—	50	—	—	—	—	—	—	—	—	—	—	4	9. Durrow.	
—	—	34	150	200	220	220	220	220	1,264	—	—	—	—	—	—	—	—	—	—	30	10. Maryboro'.	
—	—	4	18	39	57	33	32	29	212	—	—	—	—	—	—	—	—	—	—	5	11. Mountmellick.	
—	—	2	24	33	49	24	20	15	167	—	—	—	—	—	—	—	—	—	—	28	12. Mountrath.	
—	—	3	33	46	50	16	16	16	180	—	—	—	—	—	—	—	—	—	—	3	13. Portarlington.	
2	—	11	88	52	77	26	34	34	324	—	—	—	—	—	—	—	—	—	—	4	14. Rathdowney.	
—	—	1	13	6	14	6	7	7	54	—	—	—	—	—	—	—	—	—	—	3	15. Stradbally.	
1	—	—	2	10	2	6	3	3	27	—	—	—	—	—	—	—	—	—	—	1	16. Timahoe.	
3	—	65	482	532	675	423	421	380	2,986	—	—	—	—	—	—	—	—	—	—	94	Total for County of Queen's County.	
																					22 Petty Sessional Districts of the County, viz.:—	ROSCOMMON.
								No account kept.													1. Athlone.	
—	—	1	24	33	53	17	14	10	152	—	—	—	—	—	—	—	—	—	—	—	2. Ballinasloe.	
—	—	1	1	9	7	9	5	5	37	—	—	—	—	—	—	—	—	—	—	1	3. Ballintobber.	
—	—	1	2	10	8	8	7	7	43	—	—	—	—	—	—	—	—	—	—	3	4. Ballinlough.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5. Ballyfarnon.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6. Ballyforan.	
—	—	—	—	4	6	10	8	6	34	—	—	—	—	—	—	—	—	—	—	—	7. Belanagare.	
—	—	1	1	5	18	14	4	5	48	—	—	—	—	—	—	—	—	—	—	—	8. Boyle.	
—	—	—	3	7	3	1	1	—	15	—	—	—	—	—	—	—	—	—	—	—	9. Brideswell.	
1	—	12	11	41	74	62	46	36	283	—	—	—	—	—	—	—	—	—	—	17	10. Castlerea.	
—	—	2	16	10	10	8	6	6	58	—	—	—	—	—	—	—	—	—	—	—	11. Coolderry.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12. Cootehall.	
—	—	—	—	2	6	7	6	6	27	—	—	—	—	—	—	—	—	—	—	—	13. Croghan.	
—	—	10	16	18	18	24	29	64	179	—	—	—	—	—	—	—	—	—	—	—	14. Elphin.	
—	—	4	2	14	15	13	18	15	81	—	—	—	—	—	—	—	—	—	—	—	15. Frenchpark.	
—	—	—	3	3	3	5	6	6	26	—	—	—	—	—	—	—	—	—	—	2	16. Keadue.	
—	—	—	2	2	10	12	2	2	30	—	—	—	—	—	—	—	—	—	—	—	17. Kilmore.	
—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	18. Lecarrow.	
—	—	13	16	19	20	8	7	6	89	—	—	—	—	—	—	—	—	—	—	—	19. Roscommon.	
—	—	4	5	11	23	17	16	11	87	—	—	—	—	—	—	—	—	—	—	1	20. Ruskey.	
—	—	11	2	30	57	41	40	31	212	—	—	—	—	—	—	—	—	—	—	8	21. Strokestown.	
—	—	2	2	4	4	6	6	6	30	—	—	—	—	—	—	—	—	—	—	—	22. Tulsk.	
1	—	62	107	222	335	262	221	222	1,432	—	—	—	—	—	—	—	—	—	—	32	Total for the County Roscommon.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.															
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
SLIGO - -	14 Petty Sessional Districts of the County, viz. :—																	
	1. Ardnaree - -	No account kept.																
	2. Ballinafad - -	7	4	4	6	4	6	12	12	12	12	12	12	12	—	—	—	115
	3. Ballymote - -	15	18	30	48	30	27	45	48	42	36	42	45	39	—	—	—	465
	4. Collooney - -	119	23	33	30	20	24	27	19	19	17	18	18	17	—	—	—	384
	5. Coolaney - -	59	66	76	88	98	74	90	65	40	36	50	42	29	—	—	—	813
	6. Dromore - -	37	17	35	39	29	18	36	33	32	32	29	34	30	—	—	—	401
	7. Enniscrone -	45	18	16	19	18	14	16	19	15	14	16	19	—	—	—	—	229
	8. Grange - -	12	6	44	50	40	20	60	60	60	60	60	40	40	—	—	—	552
	9. Mullaghroe -	148	22	44	40	10	12	32	30	28	26	28	28	18	—	—	—	466
	10. Riverstown -	152	201	220	320	320	390	400	411	370	400	472	400	320	—	—	—	4,376
	11. Skreen - -	32	19	23	24	22	25	23	22	20	22	18	16	11	—	—	—	277
	12. Sligo - -	160	204	163	130	144	144	252	156	228	132	108	108	96	9	—	—	2,034
	13. Sooey - -	10	1	10	7	3	5	8	7	6	6	6	6	—	—	—	—	75
	14. Tobercurry -	90	54	73	80	74	89	104	120	101	98	97	108	97	—	—	—	185
	Total for the County Sligo - -	886	653	771	881	812	848	1,105	1,002	973	891	956	876	709	9	—	—	11,372
TIPPERARY - North Riding	9 Petty Sessional Districts of the N. R. County, viz. :—																	
	1. Borrisokane -	53	25	51	52	38	54	75	68	51	45	41	35	22	—	—	—	610
	2. Borrisoleigh -	10	18	29	24	32	32	33	33	33	27	23	20	14	—	—	—	328
	3. Cloughjordan -	23	16	30	31	23	28	38	39	37	31	128	33	25	—	—	—	482
	4. Lorrha - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5. Nenagh - -	No account kept.																
	6. Newport - -	27	14	26	28	24	30	35	36	33	30	29	28	19	—	—	—	359
	7. Roscrea - -	97	36	67	73	84	97	114	109	96	67	47	25	19	12	—	—	943
	8. Templemore -	26	9	30	24	16	36	40	45	39	46	44	41	10	—	—	—	406
	9. Thurles - -	78	22	40	38	31	32	31	25	20	19	21	23	20	—	—	—	400
	Total for N. R. County Tipperary - -	314	140	263	270	248	309	366	355	309	265	333	205	129	12	—	—	3,528
TIPPERARY - South Riding.	16 Petty Sessional Districts of the S. R. County, viz. :—																	
	1. Ardfinan - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballynonty - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Ballyporeen -	13	8	11	9	14	10	13	12	12	13	11	13	7	—	—	—	146
	4. Bansha - -	14	3	9	10	11	11	13	13	11	9	10	10	8	—	—	—	132
	5. Cahir - -	143	43	55	90	79	72	86	60	72	60	53	47	31	—	—	—	891
	6. Cappawhite -	10	7	21	18	13	17	30	38	33	27	37	23	29	—	—	—	303
	7. Carrick-on-Suir -	124	68	66	74	70	68	129	120	118	118	120	94	62	—	—	—	1,231
	8. Cashel - -	118	48	81	92	79	102	133	112	113	94	81	76	45	—	—	—	1,174
	9. Clogheen - -	54	19	36	42	49	57	57	48	52	42	41	37	23	—	—	—	557
	10. Clonmel - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Dundrum - -	8	2	9	8	7	12	13	13	11	8	11	7	7	—	—	—	116
	12. Fethard - -	58	26	43	46	38	43	61	49	47	41	38	31	25	—	—	—	546
	13. Golden - -	20	6	13	9	6	5	13	12	11	11	11	9	6	—	—	—	132
	14. Mullinahone -	45	24	37	35	38	39	47	48	44	43	49	50	50	—	—	—	549
	15. New Inn - -	—	—	2	1	4	2	4	8	4	8	6	5	—	—	—	—	44
	16. Tipperary - -	160	145	160	170	135	156	250	287	287	200	210	196	196	—	—	—	2,552
	Total for S. R. County Tipperary - -	767	399	544	604	543	594	849	820	815	673	678	598	489	—	—	—	8,373
TYRONE - -	20 Petty Sessional Districts of the County, viz. :—																	
	1. Aughnacloy -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2. Ballygawley -	23	6	27	36	—	35	49	42	43	32	26	25	19	—	—	—	363
	3. Caledon - -	53	11	21	30	2	22	29	27	23	19	20	16	15	—	—	—	288
	4. Carrickmore -	28	14	20	29	—	29	31	28	23	24	30	28	20	—	—	—	304
	5. Castlederg - -	32	14	33	32	—	28	53	45	43	38	39	36	33	—	—	—	426
	6. Clogher - -	8	6	14	17	—	16	28	22	23	18	18	14	9	—	—	—	193
	7. Coagh - -	8	20	52	50	—	46	50	46	46	46	46	46	46	—	—	—	502
	8. Cookstown -	41	25	62	91	—	70	144	96	66	73	80	71	69	—	—	—	888
	9. Dunnamanagh -	34	16	26	2	—	27	42	32	35	31	32	36	28	—	—	—	341
	10. Dungannon -	16	6	25	31	—	35	45	39	33	33	30	33	24	—	—	—	350
	11. Fintona - -	47	16	38	55	—	43	67	56	46	37	38	34	19	—	—	—	496
	12. Fivemiletown -	17	11	31	34	33	39	52	41	40	33	35	36	15	—	—	—	417
	13. Gortin - -	30	11	33	37	—	40	53	44	42	39	37	40	23	—	—	—	429
	14. Moy - -	4	4	9	10	—	15	22	22	11	9	8	6	7	—	—	—	127
	15. Newton Stewart -	32	12	46	65	21	43	72	62	64	61	61	57	41	—	—	—	637
	16. Omagh - -	194	84	113	130	—	109	159	134	122	94	91	100	70	—	—	—	1,400
	17. Pomeroy - -	180	79	221	235	1	168	362	277	255	328	300	260	179	—	—	—	2,845
	18. Stewartstown -	10	15	45	45	—	45	47	50	45	50	50	45	40	—	—	—	487
	19. Strabane - -	342	121	174	198	—	147	225	155	123	107	98	103	84	—	—	—	1,877
	20. Trillick - -	22	7	25	43	27	27	49	51	38	37	27	29	14	—	—	—	396
	Total for the County Tyrone - -	1,121	478	1,015	1,170	84	984	1,579	1,269	1,121	1,109	1,066	1,015	755	—	—	—	12,766
WATERFORD -	15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz. :—																	
	1. Ballymacarberry -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2. Callahane - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3. Cappoquin - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4. Carrickbeg - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																				Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.									Measures for Dry Goods.													
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qt.	Pint.	¼ Pint.	Gill.	¼ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or Gall.	¼ Peck or ½ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.		
																					14 Petty Sessional Districts of the County, viz.:—	SLIGO.
								No account kept.													1. Ardnaree.	
—	—	—	6	6	8	8	8	8	44	—	—	—	—	—	—	—	—	—	—	6	2. Ballinafad.	
—	—	—	—	9	9	12	12	9	51	—	—	—	—	—	—	—	—	—	—	—	3. Ballymote.	
—	—	5	4	12	12	13	12	12	70	—	—	—	—	—	—	—	—	—	—	4	4. Collooney.	
—	—	4	4	8	9	12	14	10	61	—	—	—	—	—	—	—	—	—	—	2	5. Coolaney.	
—	—	1	—	6	8	9	9	7	40	—	—	—	—	—	—	—	—	—	—	5	6. Dromore.	
—	—	2	6	6	6	6	6	6	38	2	1	1	—	—	—	—	—	—	4	1	7. Enniscrone.	
—	—	—	—	3	2	4	4	4	17	—	—	—	—	—	—	—	—	—	—	15	8. Grange.	
—	—	—	—	3	4	6	6	3	22	—	—	—	—	—	—	—	—	—	—	—	9. Mullaghroe.	
—	—	10	12	130	142	220	230	240	984	—	—	—	—	—	—	—	—	—	—	33	10. Riverstown.	
—	—	—	—	3	2	2	2	—	9	—	—	—	—	—	—	—	—	—	—	—	11. Skreen.	
12	20	76	140	156	283	264	86	—	1,037	15	15	15	15	15	—	—	—	—	75	97	12. Sligo.	
—	—	1	—	4	6	7	6	6	30	—	—	—	—	—	—	—	—	—	—	—	13. Sooey.	
—	—	4	6	28	30	36	46	44	194	—	—	—	—	—	—	—	—	—	—	—	14. Tobercurry.	
12	20	103	178	374	521	599	441	349	2,597	17	16	16	15	15	—	—	—	—	79	163	Total for the County Sligo.	
																					9 Petty Sessional Districts of the N. R. County, viz.:—	TIPPERARY, North Riding.
—	—	—	13	14	14	14	13	13	81	—	—	—	—	—	—	—	—	—	—	3	1. Borrisokane.	
—	1	6	30	30	32	22	22	22	165	—	—	—	—	—	—	—	—	—	—	4	2. Borrisoleigh.	
—	—	1	33	17	34	11	17	6	119	—	—	—	—	—	—	—	—	—	—	4	3. Cloughjordan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Lorrha.	
								No account kept.													5. Neuagh.	
—	—	1	1	1	1	1	1	1	7	—	—	—	—	—	—	—	—	—	—	1	6. Newport.	
3	6	5	63	45	67	21	17	8	235	—	—	—	—	—	—	—	—	—	—	14	7. Roscrea.	
—	—	4	36	41	62	8	—	—	151	—	—	—	—	—	—	—	—	—	—	—	8. Templemore.	
—	—	—	3	4	12	7	5	2	33	—	—	—	—	—	—	—	—	—	—	3	9. Thurles.	
3	7	17	179	152	222	84	75	52	791	—	—	—	—	—	—	—	—	—	—	29	Total for N. R. County Tipperary.	
																					16 Petty Sessional Districts of the S. R. County, viz.:—	TIPPERARY, South Riding.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1. Ardfinan.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Ballynonty.	
—	—	2	85	7	65	16	8	10	193	—	—	—	—	—	—	—	—	—	—	3	3. Ballyporeen.	
—	—	—	27	9	32	7	7	7	89	—	—	—	—	—	—	—	—	—	—	—	4. Bansha.	
—	—	5	111	86	185	33	29	27	476	—	—	—	—	—	—	—	—	—	—	4	5. Cahir.	
—	—	2	50	17	70	21	25	19	204	—	—	—	—	—	—	—	—	—	—	—	6. Cappawhite.	
—	—	6	10	30	40	64	64	—	214	—	—	—	—	—	—	—	—	—	—	—	7. Carrick-on-Suir.	
4	2	9	142	43	150	41	29	25	445	3	1	—	—	—	—	—	—	—	4	26	8. Cashel.	
—	—	3	186	17	63	19	19	14	321	—	—	—	—	—	—	—	—	—	—	—	9. Clogheen.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Clonmel.	
—	—	1	17	5	20	3	4	3	53	—	—	—	—	—	—	—	—	—	—	1	11. Dundrum.	
—	—	4	78	32	62	12	19	5	212	—	—	—	—	—	—	—	—	—	—	8	12. Fethard.	
—	—	1	23	—	33	4	3	2	66	—	—	—	—	—	—	—	—	—	—	2	13. Golden.	
—	—	—	68	35	22	20	15	10	170	—	—	—	—	—	—	—	—	—	—	4	14. Mullinahone.	
—	—	—	13	—	16	2	2	2	35	—	—	—	—	—	—	—	—	—	—	—	15. New Inn.	
—	—	25	47	79	80	80	80	80	471	—	—	—	—	—	—	—	—	—	—	35	16. Tipperary.	
4	2	58	857	360	838	322	304	204	2,949	3	1	—	—	—	—	—	—	—	4	83	Total for S. R. County Tipperary.	
																					20 Petty Sessional Districts of the County, viz.:—	TYRONE.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1. Aughnacloy.	
—	—	4	3	13	16	16	17	21	90	1	1	5	—	—	—	—	—	—	7	4	2. Ballygawley.	
—	—	3	—	5	6	7	8	8	37	1	1	—	—	—	—	—	—	—	2	6	3. Caledon.	
—	—	2	2	18	23	32	35	41	153	—	—	—	—	—	—	—	—	—	—	4	4. Carrickmore.	
—	—	6	8	7	18	27	38	22	126	2	—	—	—	—	—	—	—	—	2	20	5. Castlederg.	
—	—	1	—	9	12	14	13	12	61	1	—	—	—	—	—	—	—	—	1	6	6. Clogher.	
—	—	5	5	12	12	10	10	10	64	1	—	—	—	—	—	—	—	—	1	1	7. Coagh.	
—	—	—	—	8	7	3	10	22	50	1	1	—	—	—	—	—	—	—	2	—	8. Cookstown.	
—	—	5	10	10	15	16	20	20	96	—	—	—	—	—	—	—	—	—	—	4	9. Dunnamanagh.	
—	—	3	3	15	16	16	18	20	91	—	—	—	2	3	12	—	—	—	17	5	10. Dungannon.	
—	—	2	1	7	9	13	14	11	57	—	—	—	—	—	—	—	—	—	—	2	11. Fintona.	
—	—	6	3	6	7	14	15	11	62	1	—	—	—	—	—	—	—	—	1	1	12. Fivemiletown.	
—	—	—	—	4	9	15	22	13	63	—	—	—	—	—	—	—	—	—	—	—	13. Gortin.	
—	—	1	2	15	17	25	35	21	116	—	1	—	1	2	15	—	—	—	19	4	14. Moy.	
2	—	3	3	4	6	8	2	3	31	—	—	—	—	—	—	—	—	—	—	4	15. Newtou Stewart.	
2	3	7	23	24	26	37	33	36	191	6	—	4	10	—	—	—	—	—	20	30	16. Omagh.	
—	2	16	13	39	55	74	81	65	345	—	—	—	—	—	—	—	—	—	—	41	17. Pomeroy.	
—	—	8	10	12	20	20	30	20	120	—	—	—	—	—	—	—	—	—	—	20	18. Stewartstown.	
4	2	26	4	75	60	88	83	47	389	12	3	—	—	—	—	—	—	—	15	7	19. Strabane.	
—	—	—	—	4	5	7	8	7	31	—	—	—	—	—	—	—	—	—	—	7	20. Trillick.	
8	7	98	90	287	339	442	492	410	2,173	26	7	9	13	5	27	—	—	—	87	132	Total for the County Tyrone.	
																					15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz.:—	WATERFORD.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1. Ballymacarberry.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2. Callahane.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3. Cappoquin.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Carrickbeg.	

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Avoirdupois.																
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drs.	4 drs.	2 drs.	1 dr.	½ dr.	Total.
WATERFORD —*cont.*	5. Clashmore - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Do. - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	6. Dungarvan -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	7. Kilmacthomas -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	8. Lismore - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9. Portlaw - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10. Stradbally - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	11. Tallow - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	12. Tramore - -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13. Villiers Town -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	14. Waterford, St. Patrick's Hall.	56	17	19	17	18	18	16	14	12	9	8	7	6	—	—	—	217
	15. Waterford, Boro' -	250	80	100	140	100	150	200	200	80	20	20	25	20	—	—	—	1,385
	Total for the County Waterford -	306	97	119	157	118	168	216	214	92	29	28	32	26	—	—	—	1,602
WESTMEATH -	16 Petty Sessional Districts of the County, viz.:—																	
	1. Ballynacargy -	53	15	22	26	23	26	20	24	18	22	19	17	13	—	—	—	238
	2. Ballymore - -	52	20	30	32	25	26	30	35	32	30	30	28	18	—	—	—	388
	3. Brawney - -	No account kept.																
	4. Castlepollard -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	5. Clonmellon -	20	12	15	19	3	17	20	28	19	23	21	19	12	—	—	—	228
	6. Collinstown -	9	5	14	13	9	14	20	19	20	17	20	17	9	—	—	—	186
	7. Delvin - -	28	13	31	34	21	34	42	16	36	36	34	33	24	—	—	—	382
	8. Glasson - -	35	20	50	42	37	36	35	36	24	22	23	22	23	—	—	—	455
	9. Kilbeggan -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10. Killucan - -	77	36	61	69	35	71	75	65	59	57	59	57	58	—	—	—	779
	11. Knockdrin -	28	1	8	9	7	17	13	13	13	12	12	12	6	—	—	—	151
	12. Moate - -	83	37	72	80	45	66	88	69	69	60	58	57	45	—	—	—	829
	13. Mullingar - -	130	81	101	118	95	103	152	152	152	152	152	152	152	—	—	—	1,692
	14. Multifarnham -	27	14	15	17	12	16	17	18	19	13	14	15	8	—	—	—	205
	15. Rathowen - -	90	14	21	24	22	25	27	24	25	22	22	25	23	—	—	—	364
	16. Rochfortbridge -	40	22	34	45	25	40	46	41	36	43	35	41	37	—	—	—	485
	Total for the County Westmeath -	722	290	474	528	359	491	585	540	522	509	499	495	428	—	—	—	6,442
WEXFORD -	12 Petty Sessional Districts of the County, viz.:—																	
	1. Arthurstown -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2. Clonroche - -	22	13	17	20	11	19	22	17	20	17	10	17	14	—	—	—	219
	3. Duncormick -	121	62	89	102	75	87	121	104	89	88	80	81	62	—	—	—	1,161
	4. Enniscorthy -	200	70	70	60	60	50	60	60	40	40	50	60	—	—	—	—	820
	5. Ferns - -	No account kept.																
	6. Gorey - -	93	84	76	72	74	87	104	81	73	71	76	55	61	—	—	—	1,007
	7. Killinick - -	44	24	38	39	29	41	50	44	37	42	35	36	22	—	—	—	481
	8. New Ross - -	522	121	123	113	111	132	177	133	112	115	105	88	43	—	—	—	1,895
	9. Newtownbarry -	50	44	52	66	42	54	69	54	46	42	40	42	26	—	—	—	627
	10. Oulart - -	58	40	48	48	47	57	65	62	63	61	67	68	47	—	—	—	731
	11. Taghmon - -	122	36	67	71	50	78	74	76	60	58	70	80	44	—	—	—	886
	12. Wexford - -	210	120	140	145	60	140	130	130	130	130	130	130	120	—	—	—	1,715
	Total for the County Wexford - -	1,442	614	720	736	359	745	872	761	670	664	663	657	439	—	—	—	9,542
WICKLOW -	13 Petty Sessional Districts of the County, viz.:—																	
	1. Arklow - -	60	34	38	40	49	61	68	62	57	60	56	—	—	—	—	—	585
	2. Baltinglass -	80	42	44	46	57	62	70	65	61	64	55	46	25	5	—	—	722
	3. Blessington -	30	12	15	25	23	24	27	30	31	28	25	28	20	—	—	—	318
	4. Bray - -	58	34	45	46	38	45	48	44	44	35	34	30	31	—	—	—	532
	5. Carnew - -	53	22	45	41	35	40	53	52	45	23	31	34	13	—	—	—	487
	6. Coolkenno - -	78	18	27	28	21	17	22	20	18	16	17	20	10	—	—	—	312
	7. Dunlavin - -	78	29	47	37	23	45	44	43	43	43	37	36	28	8	—	—	546
	8. Enniskerry -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	9. Newtown-mount-Kennedy.	45	26	59	77	48	48	68	68	68	68	68	68	68	—	—	—	779
	10. Rathdrum - -	99	66	113	128	70	140	142	141	110	114	106	101	68	29	—	—	1,427
	11. Redcross - -	42	22	47	50	22	44	38	52	43	43	36	42	34	—	—	—	515
	12. Tinahely - -	71	28	39	53	40	61	53	44	36	37	33	28	17	—	—	—	540
	13. Wicklow - -	117	29	53	52	27	43	49	44	36	36	28	22	21	—	—	—	557
	Total for the County Wicklow - -	811	362	572	623	458	630	682	665	592	567	526	455	335	42	—	—	7,320

Appendix IV.—*cont.*—Abstract D. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

Measures of Capacity.																			Measures of Length.	District, City, Town, &c.	County.
Liquid Measures.										Measures for Dry Goods.											
4 Galls.	2 Galls.	1 Gall.	½ Gall.	Qrt.	Pint.	½ Pint.	Gill.	½ Gill.	Total.	Bushel.	½ Bushel.	Peck.	½ Peck or Gall.	¼ Peck or ½ Gall.	Quart.	Pint.	½ Pint.	¼ Pint.	Total.	Yds.	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5. Clashmore.	WATERFORD —*cont.*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Ditto.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6. Dungarvan.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7. Kilmacthomas.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Lismore.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Portlaw.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10. Stradbally.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11. Tallow.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12. Tramore.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13. Villiers Town.
—	—	6	92	118	208	18	16	16	474	—	—	—	—	—	—	—	—	—	—	—	14. Waterford, St. Patrick's Hall.
2	6	10	50	80	150	50	20	20	388	—	—	—	—	—	—	—	—	—	—	12	15. Waterford, Boro'.
2	6	16	142	198	358	68	36	36	862	—	—	—	—	—	—	—	—	—	—	12	Total for the County Waterford.
																					16 Petty Sessional Districts of the County, viz.:—	WESTMEATH.
—	—	3	4	11	11	10	9	8	56	—	—	—	—	—	—	—	—	—	—	2	1. Ballynacargy.
—	—	2	3	21	21	25	23	15	116	—	—	—	—	—	—	—	—	—	—	5	2. Ballymore.
								No account kept.													3. Brawney.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4. Castlepollard.
—	—	1	3	20	48	35	46	18	171	—	—	—	—	—	—	—	—	—	—	3	5. Clonmellon.
—	—	—	2	8	3	4	3	3	23	—	—	—	—	—	—	—	—	—	—	—	6. Collinstown.
—	—	1	1	14	23	15	14	8	76	—	—	—	—	—	—	—	—	—	—	6	7. Delvin.
—	—	4	32	33	32	11	10	7	129	—	—	—	—	—	—	—	—	—	—	4	8. Glasson.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9. Kilbeggan.
—	—	1	13	62	77	25	24	14	216	—	—	—	—	—	—	—	—	—	—	14	10. Killucan.
—	—	—	2	2	2	2	2	2	12	—	—	—	—	—	—	—	—	—	—	—	11. Knockdrin.
—	—	4	40	74	75	47	43	33	316	—	—	—	—	—	—	—	—	—	—	12	12. Moate.
—	—	13	62	126	158	110	74	61	604	—	—	—	—	—	—	—	—	—	—	7	13. Mullingar.
—	—	1	6	13	20	14	24	10	88	—	—	—	—	—	—	—	—	—	—	2	14. Multifarnham.
—	—	2	16	22	36	40	28	14	158	—	—	—	—	—	—	—	—	—	—	2	15. Rathowen.
—	—	2	2	18	27	13	20	10	92	—	—	—	—	—	—	—	—	—	—	5	16. Rochfortbridge.
—	—	34	186	424	536	354	320	203	2,057	—	—	—	—	—	—	—	—	—	—	62	Total for the County Westmeath.	WEXFORD.
																					12 Petty Sessional Districts of the County, viz.:—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1. Arthurstown.
—	—	—	9	13	8	5	6	6	47	—	—	—	—	—	—	—	—	—	—	—	2. Clonroche.
—	—	4	4	15	23	23	29	23	121	—	—	—	—	—	—	—	—	—	—	9	3. Duncormick.
—	—	40	50	100	200	100	60	60	610	—	—	—	—	—	—	—	—	—	—	40	4. Enniscorthy.
								No account kept.													5. Ferns.
—	—	9	9	17	42	31	38	32	178	—	—	—	—	—	—	—	—	—	—	3	6. Gorey.
—	—	2	8	9	11	10	9	9	58	—	—	—	—	—	—	—	—	—	—	7	7. Killinick.
12	2	29	128	329	249	47	61	55	912	—	—	—	—	—	—	—	—	—	—	—	8. New Ross.
—	—	25	55	112	128	73	54	52	499	—	—	—	—	—	—	—	—	—	—	—	9. Newtownbarry.
—	—	3	6	13	22	24	23	23	114	—	—	—	—	—	—	—	—	—	—	5	10. Oulart.
—	—	18	21	36	39	36	30	26	206	—	—	—	—	—	—	—	—	—	—	—	11. Taghmon.
—	—	3	3	20	16	30	30	30	132	—	—	—	—	—	—	—	—	—	—	15	12. Wexford.
12	2	133	293	664	738	379	340	316	2,877	—	—	—	—	—	—	—	—	—	—	79	Total for the County Wexford.
																					13 Petty Sessional Districts of the County, viz.:—	WICKLOW.
—	—	2	36	30	41	20	19	16	164	—	—	—	—	4	—	—	—	—	4	—	1. Arklow.
—	—	4	12	50	61	45	41	20	233	—	—	—	—	—	—	—	—	—	—	4	2. Baltinglass.
—	—	2	20	33	40	11	10	15	131	—	—	—	—	—	—	—	—	—	—	1	3. Blessington.
—	—	18	35	56	107	46	41	30	333	—	—	—	—	—	—	—	—	—	—	5	4. Bray.
—	—	1	—	4	9	8	8	5	35	—	—	—	—	—	—	—	—	—	—	6	5. Carnew.
—	—	—	3	8	8	6	5	5	35	—	—	—	—	—	—	—	—	—	—	7	6. Coolkenno.
—	—	2	31	60	55	25	36	18	227	—	—	—	—	—	—	—	—	—	—	5	7. Dunlavin.
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8. Enniskerry.
—	—	4	33	64	71	27	42	15	256	—	—	—	—	—	—	—	—	—	—	4	9. Newtown-mount-kennedy.
—	—	5	2	39	250	60	40	27	423	—	—	—	—	—	—	—	—	—	—	4	10. Rathdrum.
—	—	—	5	34	21	18	15	14	107	—	—	—	—	—	—	—	—	—	—	3	11. Redcross.
—	1	3	—	20	24	12	13	9	82	—	—	—	—	—	—	—	—	—	—	2	12. Tinahely.
—	—	8	8	19	33	33	18	16	135	—	—	—	—	—	—	—	—	—	—	7	13. Wicklow.
—	1	49	185	417	720	311	288	190	2,161	—	—	—	—	4	—	—	—	—	4	48	Total for the County Wicklow.

Appendix IV.—*continued.*

SUMMARY OF ABSTRACT D.

County.	Page in Abstract.	Avoirdupois.																	
		56 lbs.	28 lbs.	14 lbs.	7 lbs.	4 lbs.	2 lbs.	1 lb.	8 ozs.	4 ozs.	2 ozs.	1 oz.	8 drms.	4 drms.	2 drs.	1 dr.	½ dr.	Total.	Bullion Weight.
Antrim	216	3,825	1,722	2,554	2,862	1,647	2,875	3,322	2,973	2,880	2,655	2,562	2,548	2,231	—	—	—	34,656	—
Armagh	„	383	295	582	513	226	605	773	562	538	419	392	467	301	—	—	—	6,056	—
Carlow	„	875	273	298	395	326	409	489	440	372	331	281	214	123	—	—	—	4,826	—
Cavan	„	250	194	208	281	143	215	431	426	436	433	356	373	240	—	—	—	3,986	—
Clare	218	480	207	409	495	403	520	755	717	582	517	468	434	349	9	—	—	6,345	—
Cork, W. R.	„	1,180	533	883	985	715	850	1,041	904	711	630	620	600	516	—	—	—	10,168	—
Cork, E. R.	„	4,440	985	1,638	1,831	1,535	1,650	1,915	1,634	1,392	1,156	1,109	1,098	893	—	—	—	21,276	—
Donegal	220	895	500	698	889	638	807	1,280	1,121	1,014	943	1,015	1,002	800	—	—	—	11,602	—
Down	„	1,151	552	863	898	427	708	1,134	1,104	1,012	891	958	926	826	10	—	—	11,460	—
Dublin, City of	„	2,601	421	872	1,134	664	1,823	1,239	1,029	625	265	8	7	1	—	—	—	10,689	—
Dublin	„	44	18	41	37	31	41	60	68	63	59	60	54	38	11	11	1	637	—
Fermanagh	222	352	374	319	327	263	285	624	644	597	586	611	611	562	—	—	—	6,155	—
Galway, W. R.	„	1,020	495	597	532	345	425	578	537	497	415	400	381	324	31	1	1	6,579	—
Galway, E. R.	„	598	364	409	485	313	381	470	381	300	308	344	364	352	—	—	—	5,069	—
Kerry	„	720	300	599	767	548	588	798	646	654	563	555	468	381	54	—	—	7,641	—
Kildare	224	441	208	289	331	311	378	453	427	405	280	361	355	321	—	—	—	4,560	—
Kilkenny	„	1,944	696	680	753	684	655	782	696	607	620	577	578	467	—	—	—	9,739	—
King's County	„	1,139	428	606	646	528	682	749	706	652	601	625	592	489	9	—	—	8,452	—
Leitrim	„	313	180	332	410	199	323	423	492	341	318	296	309	270	—	—	—	4,206	—
Limerick	„	394	255	795	890	732	646	975	862	760	614	599	564	431	4	—	—	8,521	—
Londonderry	226	1,658	510	696	845	403	761	1,012	779	723	784	719	785	728	6	14	10	10,433	—
Longford	„	510	280	283	274	182	328	331	314	288	283	272	291	241	—	—	—	3,877	—
Louth	„	729	215	328	359	194	301	466	382	333	292	286	272	212	—	—	—	4,369	—
Mayo	„	698	377	543	630	596	655	903	850	823	920	929	900	806	—	—	—	9,630	—
Meath	228	1,169	474	781	812	592	841	986	884	744	704	620	573	442	22	—	—	9,644	—
Monaghan	„	233	136	188	254	72	220	316	242	234	225	231	151	59	—	—	—	2,561	—
Queen's County	„	128	594	679	664	613	751	730	725	658	626	627	599	537	—	—	—	7,931	—
Roscommon	„	584	255	376	379	243	429	531	490	435	393	368	373	331	—	—	—	5,187	—
Sligo	230	886	653	771	881	812	848	1,105	1,002	973	891	956	876	709	9	—	—	11,372	—
Tipperary, N. R.	„	314	140	263	270	248	309	366	355	309	265	333	205	129	12	—	—	3,518	—
Tipperary, S. R.	„	767	399	544	604	543	594	849	820	815	673	678	598	489	—	—	—	8,373	—
Tyrone	„	1,121	478	1,015	1,170	84	984	1,579	1,269	1,121	1,109	1,066	1,015	755	—	—	—	12,766	—
Waterford	„	306	97	119	157	118	168	216	214	92	29	28	32	26	—	—	—	1,602	—
Westmeath	232	722	290	474	528	359	491	585	540	522	509	499	495	428	—	—	—	6,442	—
Wexford	„	1,442	614	720	736	359	745	872	761	670	664	663	657	439	—	—	—	9,342	—
Wicklow	„	811	362	572	623	458	630	682	665	592	567	526	455	435	42	—	—	7,420	—
Grand Total	—	35,123	14,874	22,024	24,647	16,554	23,921	29,820	26,661	23,770	21,538	20,998	20,222	16,681	219	26	12	297,090	—

REMARKS BY THE WARDEN OF THE STANDARDS.

It appears from the returns of the several Inspectors, that no Troy Weights, Bullion Weights, or Gas Measures were stamped in Ireland during the year 1866.

In addition to the number of weights and measures stamped by the Inspectors, as shown in the preceding Abstract, the following weights and measures, of which there is no specific legal standard, were also stamped.

County.	District.	Number of Weights and Measures stamped.		
		3½ lbs. Weight.	5 Gallons.	¼ Gill.
Antrim	Ballyclare	—	—	25
	Carrickfergus Town	41	—	17
	Carrickfergus, Petty Sessional District.	8	—	16
	Parkgate	—	—	15
	Whitehorse	—	—	9
Cavan	Ballinagh	—	—	3
Leitrim	Mohill	13	—	—
Limerick	Ballyneety	—	—	22
Londonderry	Coleraine	42	4	38
	Londonderry, City	163	—	98
Louth	Dunleer	1	—	—
Mayo	Ballinrobe	3	—	—
Monaghan	Ballybay	42	—	—
	Carrickmacross	38	—	—
	Clones	27	—	—
Roscommon	Castlerea	—	2	23
	French-park	—	5	—
Tyrone	Castlederg	27	—	—
	Clogher	22	—	—
	Cookstown	64	—	—
	Gortin	26	—	—
	Omagh	90	—	—
	Strabane	104	—	—
	Total	711	11	266

In the borough of Waterford four double bushels for lime were also stamped, and in the Petty Sessional District of Clonmellon, County of Westmeath, one 3-gallon liquid measure.

Appendix IV.—*continued.*

SUMMARY OF ABSTRACT D.

Page in Abstract.	Measures of Capacity. Liquid Measures. 4 Galls.	2 Galls.	1 Gall.	½ Gall.	Quart.	Pint.	½ Pint.	Gill.	¼ Gill.	Total.	Measures for Dry Goods. Bushel.	½ Bushel.	Peck.	½ Peck or Gallon.	¼ Peck or ½ Gallon.	Quart.	Total.	Measures of Length. Yds.	Number of Districts in which— Weights and Measures were stamped.	were None stamped.	No record was kept.	County.
217	20	53	261	237	823	1,078	691	708	689	4,560	143	73	74	46	—	—	336	137	20	4	2	ANTRIM.
„	1	21	59	68	139	193	183	206	165	1,035	6	6	10	—	—	—	22	17	10	6	—	ARMAGH.
„	1	2	25	253	393	526	207	144	96	1,647	1	1	1	1	—	—	4	60	7	—	—	CARLOW.
„	—	2	17	7	59	61	68	46	97	357	5	8	28	13	—	—	54	33	7	11	—	CAVAN.
219	—	1	8	137	263	403	493	323	174	1,802	—	—	—	—	—	—	—	24	19	1	—	CLARE.
„	—	—	83	3,725	202	3,653	480	409	372	8,924	—	—	—	—	—	—	—	—	21	1	—	CORK, W. R.
„	2	—	217	6,030	1,224	9,277	734	548	517	18,549	—	—	—	—	—	—	—	—	32	1	—	CORK, E. R.
221	1	4	102	89	224	307	448	501	428	2,104	—	2	—	—	—	—	2	140	22	—	4	DONEGAL.
„	1	1	58	83	133	160	176	196	163	976	31	16	27	21	3	4	102	68	15	10	1	DOWN.
„	469	221	363	278	369	342	118	141	150	2,451	—	—	—	—	—	—	—	—	1	—	—	DUBLIN, CITY OF.
„	1	—	2	64	75	170	28	26	11	377	1	1	1	1	1	1	6	1	7	3	1	DUBLIN.
223	—	—	36	36	99	110	120	121	127	649	1	1	11	6	—	—	19	66	13	—	—	FERMANAGH.
„	4	—	55	871	644	715	284	238	185	2,996	1	1	1	1	1	1	6	—	20	3	—	GALWAY, W. R.
„	—	—	122	761	661	565	268	229	148	2,754	—	—	—	—	—	—	—	—	12	2	—	GALWAY, E. R.
„	15	43	156	586	292	1,376	395	354	350	3,567	3	—	—	—	—	—	3	109	19	3	1	KERRY.
225	3	1	172	502	553	630	302	200	184	2,547	4	3	5	9	—	—	21	18	6	7	1	KILDARE.
„	15	21	99	938	1,145	871	443	329	228	4,089	—	—	—	—	—	—	—	37	16	1	—	KILKENNY.
„	10	11	73	474	424	563	301	295	174	2,325	8	3	2	—	—	—	13	84	16	—	—	KING'S COUNTY.
„	1	3	31	33	107	146	153	161	140	775	1	1	10	9	—	—	21	62	13	—	—	LEITRIM.
„	—	4	93	1,209	262	2,437	453	257	273	4,988	—	—	—	—	—	—	—	—	22	1	—	LIMERICK.
227	19	15	66	89	137	199	278	315	314	1,432	37	23	21	18	—	—	99	93	12	—	3	LONDONDERRY.
„	3	8	29	44	321	395	259	260	287	1,606	2	4	10	10	—	—	26	52	9	1	1	LONGFORD.
„	10	14	34	37	356	281	229	235	163	1,359	13	9	6	3	2	1	34	92	9	1	—	LOUTH.
„	1	2	43	414	319	427	290	297	193	1,986	—	—	—	—	—	—	—	76	17	1	6	MAYO.
229	2	—	109	304	959	753	508	550	534	3,719	4	8	13	21	—	—	46	44	16	1	1	MEATH.
„	12	16	18	31	67	82	108	54	38	426	25	12	55	53	—	—	145	21	7	1	—	MONAGHAN.
„	3	—	65	482	532	675	428	421	380	2,986	—	—	—	—	—	—	—	94	15	1	—	QUEEN'S COUNTY.
„	1	—	62	107	222	335	262	221	222	1,432	—	—	—	—	—	—	—	32	21	—	1	ROSCOMMON.
231	12	20	103	178	374	521	599	441	349	2,597	17	16	16	15	15	—	79	163	13	—	1	SLIGO.
„	3	7	17	179	152	222	84	75	52	791	—	—	—	—	—	—	—	29	7	1	1	TIPPERARY, N. R.
„	4	2	58	857	360	838	322	304	204	2,949	3	1	—	—	—	—	4	83	13	3	—	TIPPERARY, S. R.
„	8	7	98	90	287	339	442	492	410	2,173	26	7	9	13	5	27	87	132	19	1	—	TYRONE.
„	2	6	16	142	198	358	68	36	36	862	—	—	—	—	—	—	—	12	2	13	—	WATERFORD.
233	—	—	34	186	424	536	354	320	203	2,057	—	—	—	—	—	—	—	62	13	2	1	WESTMEATH.
„	12	2	133	293	664	738	379	340	316	2,877	—	—	—	—	—	—	—	79	10	1	1	WEXFORD.
„	—	1	49	185	417	720	311	288	190	2,161	—	—	—	—	4	—	4	48	12	1	—	WICKLOW.
—	636	488	2,966	19,999	13,880	31,002	11,266	10,181	8,567	98,985	332	196	300	240	31	34	1,133	1,968	493	82	26	GRAND TOTAL.

REMARKS BY THE WARDEN OF THE STANDARDS.

The question of the legality and of the expediency of thus stamping weights and measures of other denominations than those for which legal standards are provided, has been elsewhere referred to.

It may also be noticed that there were several cases of stamping weights under 4 drams, in districts not provided with sub-standards less than of 4 drams weight.

The total number of weights and measures stamped during the year 1866, in 493 districts out of the whole number of 604 districts of inspection in Ireland, appear therefore to be as follows:—

Avoirdupois weights - - - -	297,090
Liquid measures of capacity - - -	98,985
Dry „ „ - - -	1,133
Yards - - - - - -	1,968
Total - - - -	399,176

In 82 districts no weights and measures appear to have been stamped, and in 26 districts no record was kept, notwithstanding the express direction contained in s. xxiv. of the Weights and Measures Act of 1835, 5 & 6 Wm. IV. c. 63, that every Inspector "shall examine, compare, and stamp, if found correct, all such weights and measures as shall "be brought to him for that purpose, and shall * * *keep a book wherein he shall enter minutes of such comparisons,*" &c.

H. W. CHISHOLM,
Warden.

Standards Department, April 7, 1868.

Appendix IV.—*continued.*

Abstracts of Returns from the Local Inspectors of Weights and Measures in Ireland, for the Year ended December 31, 1866.

Abstract E.—Amount of Receipts and of Expenditure connected with the Local Inspection of Weights and Measures in Ireland.

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Antrim -	26 Petty Sessional Districts of the County, including the City of Belfast and the County of the Town of Carrickfergus, viz.:—								
	1. Ahoghill - - -	—	—	—	—	—	—	—	—
	2. Antrim - - -	—	—	—	—	—	—	—	—
	3. Ballycastle - - -	—	—	—	—	—	—	—	3 12 11
	4. Ballyclare - - -	—	—	—	—	—	—	—	1 15 9
	5. Ballymena - - -	—	—	—	—	—	—	—	—
	6. Ballymoney - - -	—	—	—	—	—	—	—	3 5 9
	7. Belfast, East - - -	—	—	—	—	—	—	—	—
	8. Do. South - -	—	—	—	—	—	—	—	—
	9. Do. North - -	—	—	—	—	—	—	—	—
	10. Do. West - -	—	—	—	—	—	—	—	—
	11. Bushmills - - -	—	—	—	—	—	—	—	1 17 6
	12. Carrickfergus, County of Town.	—	—	—	—	—	—	—	—
	13. Carrickfergus, Petty Sess.	—	—	—	—	—	—	—	1 4 0
	14. Cushendall - - -	—	—	—	—	—	—	—	—
	15. Crumlin - - -	—	—	—	—	—	—	—	—
	16. Dervock - - -	—	—	—	—	—	—	—	—
	17. Glenarm - - -	—	—	—	—	—	—	—	—
	18. Killagan - - -	—	—	—	—	—	—	—	2 3 6
	19. Larne - - - -	—	—	—	—	—	—	—	—
	20. Lisburn - - -	—	—	—	—	—	—	—	—
	21. Parkgate - - -	—	—	—	—	—	—	—	—
	22. Portglenone - - -	—	—	—	—	—	—	—	—
	23. Randalstown - - -	—	—	—	—	—	—	—	0 9 11
	24. Rasharkin - - -	—	—	—	—	—	—	—	1 10 2
	25. Toome - - - -	—	—	—	—	—	—	—	0 10 6
	26. Whitehouse - - -	—	—	—	—	—	—	—	0 3 0
	Total for the County Antrim - - -	—	—	—	—	—	—	—	16 13 0
Armagh -	16 Petty Sessional Districts of the County, viz.:—								
	1. Armagh - - -	—	—	—	—	—	—	—	—
	2. Ballybot - - -	—	—	—	—	—	—	—	1 11 0
	3. Charlemont - - -	—	—	—	—	—	—	—	0 7 0
	4. Clonmacate - - -	—	—	—	—	—	—	—	—
	5. Crossmaglen - - -	—	—	—	—	—	—	—	0 13 6
	6. Forkhill - - -	—	—	—	—	—	—	—	0 8 8
	7. Keady - - - -	—	—	—	—	—	—	—	—
	8. Lurgan, Town - -	—	—	—	—	—	—	—	0 3 7
	9. Loughall, Town - -	—	—	—	—	—	—	—	0 6 0
	10. Markethill - - -	—	—	—	—	—	—	—	—
	11. Middletown - - -	—	—	—	—	—	—	—	0 13 0
	12. Newtonhamilton - -	—	—	—	—	—	—	—	—
	13. Portadown, Town - -	—	—	—	—	—	—	—	—
	14. Do. Petty Sess. -	—	—	—	—	—	—	—	—
	15. Poyntzpass - - -	—	—	—	—	—	—	—	1 11 0
	16. Tynan - - - -	—	—	—	—	—	—	—	—
	Total for the County Armagh - -	—	—	—	—	—	—	—	5 13 9
Carlow -	7 Petty Sessional Districts of the County, viz.:—								
	1. Bagnalstown - - -	—	—	—	—	—	—	—	—
	2. Borris - - - -	—	—	—	—	—	—	—	—
	3. Carlow - - - -	—	—	—	—	—	—	—	0 2 6

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipt applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Carlow—*cont.*	4. Fenagh	—	—	—	—	—	—	—	—
	5. Hacketstown	—	—	—	—	—	—	—	0 18 0
	6. Myshall	—	—	—	—	—	—	—	—
	7. Tullow	—	—	—	—	—	—	—	0 12 6
	Total for the County Carlow	—	—	—	—	—	—	—	1 13 0
Cavan	18 Petty Sessional Districts of the County, viz.:—								
	1. Arva	—	—	—	—	—	—	—	—
	2. Bailieborough	—	—	—	—	—	—	—	—
	3. Belturbet	—	—	—	—	—	—	—	—
	4. Ballyconnell	—	—	—	—	—	—	—	—
	5. Ballinagh	—	—	—	—	—	—	—	—
	6. Bally-Jas.-Duff	—	—	—	—	—	—	—	—
	7. Bawnboy	—	—	—	—	—	—	—	—
	8. Cavan	Weights destroyed.		—	—	—	—	—	—
	9. Cootehill	—	—	—	—	—	—	—	—
	10. Killyglasson	—	—	—	—	—	—	—	0 11 0
	11. Kingscourt	—	—	—	—	—	—	—	—
	12. Killishandra	—	—	—	—	—	—	—	—
	13. Kilnaleck	—	—	—	—	—	—	—	—
	14. Mullagh	—	—	—	—	—	—	—	—
	15. Mountnugent	—	—	—	—	—	—	—	—
	16. Shercock	—	—	—	—	—	—	—	—
	17. Swanlinbar	—	—	—	—	—	—	—	—
	18. Virginia	—	—	—	—	—	—	—	—
	Total for the County Cavan	—	—	—	—	—	—	—	0 11 0
Clare	20 Petty Sessional Districts of the County, viz.:—								
	1. Ballyvaughan	—	—	—	—	—	—	—	—
	2. Broadford	—	—	—	—	—	—	—	—
	3. Carrigaholt	—	—	—	—	—	—	—	—
	4. Corofin	—	—	—	—	—	—	—	—
	5. Crusheen	—	—	—	—	—	—	—	—
	6. Doonass	—	—	—	—	—	—	—	—
	7. Ennis, Town	—	—	—	—	—	—	—	—
	8. Ennistymon	—	—	—	—	—	—	—	—
	9. Feakle	—	—	—	—	—	—	—	—
	10. Kildysart	—	—	—	—	—	—	—	—
	11. Kilkee	—	—	—	—	—	—	—	—
	12. Kilaloe	—	—	—	—	—	—	—	—
	13. Kilrush	—	—	—	—	—	—	—	—
	14. Knock	—	—	—	—	—	—	—	—
	15. Miltown malbay	—	—	—	—	—	—	—	—
	16. Newmarket-on-Fergus	—	—	—	—	—	—	—	—
	17. Quin	—	—	—	—	—	—	—	—
	18. Six Mile Bridge	—	—	—	—	—	—	—	—
	19. Tomgraney	—	—	—	—	—	—	—	—
	20. Tulla	—	—	—	—	—	—	—	—
	Total for the County Clare	—	—	—	—	—	—	—	—
Cork, West Riding.	22 Petty Sessional Districts of the W. R. County, viz.:—								
	1. Ballinspittle	—	—	—	—	—	—	—	—
	2. Ballydrehob	—	—	—	—	—	—	—	—
	3. Ballyvourney	—	—	—	—	—	—	—	—
	4. Bandon	—	—	—	—	—	—	—	—
	5. Bantry	—	—	—	—	—	—	—	—
	6. Carrigboy	—	—	—	—	—	—	—	0 17 1
	7. Castletown	—	—	—	—	—	—	—	3 13 6
	8. Clonakillty	—	—	—	—	—	—	—	—
	9. Dromoleaghue	—	—	—	—	—	—	—	—
	10. Dunmanway, Town	—	—	—	—	—	—	—	—
	11. Do. Petty Sess.	—	—	—	—	—	—	—	—
	12. Goleen	—	—	—	—	—	—	—	—
	13. Innishannon	—	—	—	—	—	—	—	—
	14. Macroom	—	—	—	—	—	—	—	—
	15. Millstreet	—	—	—	—	—	—	—	—
	16. Reinmeen	—	—	—	—	—	—	—	1 3 1
	17. Rosscarberry	—	—	—	—	—	—	—	—
	18. Shandangan	—	—	—	—	—	—	—	—
	19. Skibbereen	—	—	—	—	—	—	—	—
	20. Skull	—	—	—	—	—	—	—	—
	21. Timoleague	—	—	—	—	—	—	—	0 4 0
	22. Union Hall	—	—	—	—	—	—	—	—
	Total for the W. R. County Cork	—	—	—	—	—	—	—	5 17 7

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized. Amount.	Total Produce of Weights, &c., seized. To whom paid.	Total Fees for Stamping. Amount.	Total Fees for Stamping. To whom paid.	Total Fees for Adjusting. Amount.	Total Fees for Adjusting. To whom paid.	Total Receipt applicable to total Expenditure.	Total Expenditure.
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Cork - East Riding.	33 Petty Sessional Districts of the County, including the City of Cork, viz.:—								
	1. Ahadalane	—	—	—	—	—	—	—	—
	2. Ballymartle	—	—	—	—	—	—	—	—
	3. Blarney	—	—	—	—	—	—	—	0 12 0
	4. Buttevant	—	—	—	—	—	—	—	—
	5. Carrigaline	—	—	—	—	—	—	—	—
	6. Castlemartyr	—	—	—	—	—	—	—	1 9 0
	7. Castletownroche	—	—	—	—	—	—	—	—
	8. Cecilstown	—	—	—	—	—	—	—	—
	9. Charleville	—	—	—	—	—	—	—	—
	10. Cloyne	—	—	—	—	—	—	—	—
	11. Coachford	—	—	—	—	—	—	—	—
	12. Cork, City of	Weights, &c. destroyed		—	—	—	—	—	1 10 0
	Do. Do.	Do.		—	—	—	—	—	1 5 6
	Do. Do.	Do.		—	—	—	—	—	0 17 6
	13. Conna	—	—	—	—	—	—	—	—
	14. Doneraile	—	—	—	—	—	—	—	—
	15. Douglas	—	—	—	—	—	—	—	—
	16. Farran	—	—	—	—	—	—	—	—
	17. Fermoy	—	—	—	—	—	—	—	—
	Do.	—	—	—	—	—	—	—	—
	18. Kanturk	—	—	—	—	—	—	—	—
	19. Kildorrery	—	—	—	—	—	—	—	—
	20. Kinsale, Boro.	—	—	—	—	—	—	—	—
	21. Knocknagree	—	—	—	—	—	—	—	—
	22. Liscarroll	—	—	—	—	—	—	—	—
	23. Lisheens	—	—	—	—	—	—	—	—
	24. Mallow	—	—	—	—	—	—	—	—
	25. Midleton	—	—	—	—	—	—	—	—
	26. Mitchelstown	—	—	—	—	—	—	—	—
	27. Newmarket	—	—	—	—	—	—	—	—
	28. Passagewest	—	—	—	—	—	—	—	—
	29. Queenstown	—	—	—	—	—	—	—	—
	30. Rathcormack	—	—	—	—	—	—	—	—
	31. Riverstown	—	—	—	—	—	—	—	—
	32. Tracton	—	—	—	—	—	—	—	—
	33. Youghal	—	—	—	—	—	—	—	—
	Total for the E. R. County Cork	—	—	—	—	—	—	—	5 19 6
Donegal	26 Petty Sessional Districts of the County, viz.:—								
	1. Ardara	—	—	—	—	—	—	—	1 18 6
	2. Arranmore	—	—	—	—	—	—	—	2 10 0
	3. Ballintra	—	—	—	—	—	—	—	—
	4. Ballyshannon	—	—	—	—	—	—	—	—
	5. Buncrana	—	—	—	—	—	—	—	—
	6. Burnfoot	—	—	—	—	—	—	—	—
	7. Bunbeg	—	—	—	—	—	—	—	—
	8. Carrdonagh	—	—	—	—	—	—	—	—
	Do.	—	—	—	—	—	—	—	—
	9. Churchill	—	—	—	—	—	—	—	—
	10. Donegal	—	—	—	—	—	—	—	—
	11. Dungloe	0 3 8	Petty Sessional Clerk.	—	—		—	—	3 8 6
	12. Dunfanaghy	—	—	—	—	—	—	—	—
	13. Glenties	—	—	—	—	—	—	—	1 7 0
	14. Killybegs	—	—	—	—	—	—	—	—
	15. Letterkenny	—	—	—	—	—	—	—	—
	16. Lifford	—	—	—	—	—	—	—	—
	17. Malin	—	—	—	—	—	—	—	—
	18. Milford	—	—	—	—	—	—	—	—
	19. Moville	—	—	—	—	—	—	—	—
	20. Newton Cunningham	—	—	—	—	—	—	—	—
	21. Pettigo	—	—	—	—	—	—	—	—
	22. Ramelton	—	—	—	—	—	—	—	—
	23. Rathmullan	0 5 6	Petty Sessional Clerk.	—	—	—	—	—	—
	24. Raphoe	—	—	—	—	—	—	—	—
	25. Stranorlar	—	—	—	—	—	—	—	—
	26. Tamney	—	—	—	—	—	—	—	—
	Total for the County Donegal	0 9 2	—	—		—	—	—	0 14 0 9 18 0
Down	26 Petty Sessional Districts of the County, viz.:—								
	1. Ardglass and Killough	—	—	—	—	—	—	—	—
	2. Ballynahinch, sub-district of Killinch.	—	—	—	—	—	—	—	0 18 6

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Down—*cont.*	3. Ballynahinch, Petty Sessional division.	—	—	—	—	—	—	—	1 4 0
	4. Banbridge	—	—	—	—	—	—	—	1 2 8
	5. Bangor	—	—	—	—	—	—	—	2 3 6
	6. Castlewellan	—	—	—	—	—	—	—	—
	7. Donaghadee	—	—	—	—	—	—	—	1 1 4
	8. Downpatrick	—	—	—	—	—	—	—	—
	9. Dromara	—	—	—	—	—	—	—	2 8 6
	10. Dromore	—	—	—	—	—	—	—	2 3 0
	11. Gilford	—	—	—	—	—	—	—	2 16 0
	12. Greyabbey	—	—	—	—	—	—	—	1 8 6
	13. Hillsborough	—	—	—	—	—	—	—	2 1 0
	14. Kilkeel	—	—	—	—	—	—	—	0 15 6
	Killough. *See* Ardglass.								
	15. Killyleagh	—	—	—	—	—	—	—	—
	16. Moira	—	—	—	—	—	—	—	2 8 6
	17. Newry	—	—	—	—	—	—	—	—
	18. Newtownbreda	—	—	—	—	—	—	—	0 12 0
	19. Newtownards	—	—	—	—	—	—	—	1 0 6
	20. Newtonards, sub-division of Hollywood.	—	—	—	—	—	—	—	1 16 2
	21. Portaferry	—	—	—	—	—	—	—	—
	22. Rathfriland	—	—	—	—	—	—	—	—
	23. Saintfeld	—	—	—	—	—	—	—	1 7 6
	24. Seaford	—	—	—	—	—	—	—	—
	25. Warrenpoint	—	—	—	—	—	—	—	—
	26. Waringstown	—	—	—	—	—	—	—	1 18 0
	Total for the County Down	—	—	—	—	—	—	—	27 2 2
Dublin	Dublin, City of	—	—	12 8 8	Inspector	294 15 8	Inspector's Salary.	307 4 4	507 13 1
	Total for the City of Dublin	—	—	12 8 8	—	294 15 8	—	307 4 4	507 13 1
Dublin	11 Petty Sessional Districts of the County, viz.:—								
	1. Balbriggan	—	—	—	—	—	—	—	—
	2. Blanchardstown	—	—	—	—	—	—	—	1 4 0
	3. Cabinteely	—	—	—	—	—	—	—	—
	4. Drumcondra	—	—	—	—	—	—	—	1 12 0
	5. Lucan	—	—	—	—	—	—	—	—
	6. Newcastle	—	—	—	—	—	—	—	1 2 0
	7. Raheny	—	—	—	—	—	—	—	—
	8. Rathfarnham	—	—	—	—	—	—	—	0 10 0
	9. Swords	—	—	—	—	—	—	—	—
	10. Tallaght	—	—	—	—	—	—	—	0 10 0
	11. (Name of District not stated.)	—	—	—	—	—	—	—	—
	Total for the County Dublin	—	—	—	—	—	—	—	3 18 0
Fermanagh	13 Petty Sessional Districts of the County, viz.:—								
	1. Belleek	—	—	—	—	—	—	—	0 13 6
	2. Brookborough	—	—	—	—	—	—	—	—
	3. Derrygonnelly	—	—	—	—	—	—	—	—
	4. Derrylin	—	—	—	—	—	—	—	—
	5. Enniskillen	—	—	—	—	—	—	—	—
	6. Irvinestown	—	—	—	—	—	—	—	—
	7. Kesh	—	—	—	—	—	—	—	0 18 3
	8. Lack	—	—	—	—	—	—	—	0 12 0
	9. Letterbreen	—	—	—	—	—	—	—	—
	10. Lisbellaw	—	—	—	—	—	—	—	—
	11. Lisnaskea	—	—	—	—	—	—	—	—
	12. Newtonbutler	—	—	—	—	—	—	—	0 11 0
	13. Roslea	—	—	—	—	—	—	—	0 18 0
	Total for the County Fermanagh	—	—	—	—	—	—	—	3 12 9
Galway West Riding.	23 Petty Sessional Districts of the County, viz.:—								
	1. Ardrahan	—	—	—	—	—	—	—	—
	2. Arran	—	—	—	—	—	—	—	—
	3. Ballymoe	—	—	—	—	—	—	—	—
	4. Carna	—	—	—	—	—	—	—	—

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Galway—*cont.*	5. Castletown	—	—	—	—	—	—	—	—
	6. Clifden	—	—	—	—	—	—	—	—
	7. Clonbur	—	—	—	—	—	—	—	—
	8. Derreen	—	—	—	—	—	—	—	—
	9. Dunmore	—	—	—	—	—	—	—	—
	10. Galway Town	—	—	—	—	—	—	—	—
	11. Galway Petty Sess.	—	—	—	—	—	—	—	—
	12. Gort	—	—	—	—	—	—	—	—
	13. Headford	—	—	—	—	—	—	—	—
	14. Kinvara	—	—	—	—	—	—	—	—
	15. Letterfrack	—	—	—	—	—	—	—	—
	16. Maam	—	—	—	—	—	—	—	—
	17. Milltown	—	—	—	—	—	—	—	—
	18. Oranmore	—	—	—	—	—	—	—	—
	19. Oughterard	—	—	—	—	—	—	—	—
	20. Roundstone	—	—	—	—	—	—	—	—
	21. Spiddle	—	—	—	—	—	—	—	—
	22. Tuam	—	—	—	—	—	—	—	—
	23. Williamstown	—	—	—	—	—	—	—	—
	Total for the W.R. County Galway	—	—	—	—	—	—	—	—
Galway — East Riding.	14 Petty Sessional Districts of the E.R. County, viz.:—								
	1. Athenry	—	—	—	—	—	—	—	1 8 0
	2. Ahaseragh	—	—	—	—	—	—	—	0 3 0
	3. Ballinamore	—	—	—	—	—	—	—	—
	4. Ballinasloe	Weights, &c. destroyed		—	—	—	—	—	0 10 0
	5. Ballygar	—	—	—	—	—	—	—	—
	6. Eyrecourt	—	—	—	—	—	—	—	0 7 6
	7. Gurteen	—	—	—	—	—	—	—	0 11 6
	8. Killimor	—	—	—	—	—	—	—	—
	9. Laurencetown	—	—	—	—	—	—	—	—
	10. Loughrea	—	—	—	—	—	—	—	—
	11. Marblehill	—	—	—	—	—	—	—	—
	12. Mountbellewbridge	—	—	—	—	—	—	—	—
	13. Mountshannon	—	—	—	—	—	—	—	—
	14. Portumna	—	—	—	—	—	—	—	—
	Total for the E.R. County Galway	—	—	—	—	—	—	—	3 0 0
Kerry	23 Petty Sessional Districts of the County, viz.:—								
	1. Annascaul	—	—	—	—	—	—	—	—
	2. Ballylongford	—	—	—	—	—	—	—	0 15 8
	3. Cahirciveen	—	—	—	—	—	—	—	—
	4. Cahirdaniel	—	—	—	—	—	—	—	—
	5. Castleisland	—	—	—	—	—	—	—	—
	6. Causeway	—	—	—	—	—	—	—	—
	7. Coolmagort	—	—	—	—	—	—	—	—
	8. Castlegregory	—	—	—	—	—	—	—	—
	9. Dingle	—	—	—	—	—	—	—	—
	10. Gunsboro	—	—	—	—	—	—	—	—
	11. Kenmare	—	—	—	—	—	—	—	2 0 6
	12. Killarney	—	—	—	—	—	—	—	—
	13. Killorglin	—	—	—	—	—	—	—	—
	14. Kilpadder	—	—	—	—	—	—	—	0 16 0
	15. Listowell	—	—	—	—	—	—	—	0 17 3
	16. Milltown	—	—	—	—	—	—	—	—
	17. Portmagee	—	—	—	—	—	—	—	—
	18. Sneem	—	—	—	—	—	—	—	1 6 0
	19. Tarbert	—	—	—	—	—	—	—	1 5 7
	20. Tralee	—	—	—	—	—	—	—	—
	21. Valentia	—	—	—	—	—	—	—	—
	22. Waterville	—	—	—	—	—	—	—	—
	23. (Not stated, the Inspector being absent.)	—	—	—	—	—	—	—	—
	Total for the County Kerry	—	—	—	—	—	—	—	7 1 0
Kildare	14 Petty Sessional Districts of the County, viz.:—								
	1. Athy	—	—	—	—	—	—	—	—
	2. Ballymore	—	—	—	—	—	—	—	—
	3. Carberry	—	—	—	—	—	—	—	—
	4. Castledermot	—	—	—	—	—	—	—	—
	5. Celbridge	—	—	—	—	—	—	—	—

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
KILDARE—*cont.*	6. Clane	—	—	—	—	—	—	—	—
	7. Donadea	—	—	—	—	—	—	—	—
	8. Kilcullen	—	—	—	—	—	—	—	—
	9. Kildare	—	—	—	—	—	—	—	—
	10. Kilmeaghue	—	—	—	—	—	—	—	—
	11. Monasterevan	—	—	—	—	—	—	—	—
	12. Naas	—	—	—	—	—	—	—	—
	13. Newbridge	—	—	—	—	—	—	—	—
	14. Rathangan	—	—	—	—	—	—	—	0 7 6
	Total for the County Kildare	—	—	—	—	—	—	—	—
									0 7 6
KILKENNY	17 Petty Sessional Districts of the County, viz.:								
	1. Ballyragget	—	—	—	—	—	—	—	0 15 0
	2. Callan	—	—	—	—	—	—	—	1 1 9
	3. Castlecomer	—	—	—	—	—	—	—	0 18 0
	4. Dunmore	—	—	—	—	—	—	—	—
	5. Freshford	—	—	—	—	—	—	—	—
	6. Gowran	—	—	—	—	—	—	—	0 5 0
	7. Goresbridge	—	—	—	—	—	—	—	—
	8. Graigue	—	—	—	—	—	—	—	0 10 0
	9. Johnstown	—	—	—	—	—	—	—	—
	10. Kilkenny City	—	—	—	—	—	—	—	0 14 0
	11. Kilmacow	—	—	—	—	—	—	—	—
	12. Kilmaganny	—	—	—	—	—	—	—	—
	13. Kilmanagh	—	—	—	—	—	—	—	—
	14. Pilltown	—	—	—	—	—	—	—	—
	15. Rosbercon	—	—	—	—	—	—	—	1 6 0
	16. Stoneyford	—	—	—	—	—	—	—	1 0 0
	17. Thomastown	—	—	—	—	—	—	—	0 17 0
	Total for the County Kilkenny	—	—	—	—	—	—	—	—
									7 6 9
KING'S COUNTY	16 Petty Sessional Districts of the County, viz.:—								
	1. Ballycumber	—	—	—	—	—	—	—	—
	2. Banagher	—	—	—	—	—	—	—	—
	3. Clara	—	—	—	—	—	—	—	0 6 6
	4. Clonegowan	—	—	—	—	—	—	—	0 19 0
	5. Edenderry	—	—	—	—	—	—	—	0 12 6
	6. Fahy	—	—	—	—	—	—	—	0 11 0
	7. Ferbane	—	—	—	—	—	—	—	1 6 10
	8. Frankford	—	—	—	—	—	—	—	—
	9. Kinnitty	—	—	—	—	—	—	—	—
	10. Moneygall	—	—	—	—	—	—	—	—
	11. Moystown	—	—	—	—	—	—	—	1 2 6
	12. Parsonstown	—	—	—	—	—	—	—	—
	13. Phillipstown	—	—	—	—	—	—	—	0 19 6
	14. Shinrone	—	—	—	—	—	—	—	—
	15. Thomastown	—	—	—	—	—	—	—	—
	16. Tullamore	—	—	—	—	—	—	—	0 16 0
	Total for the County of King's County	—	—	—	—	—	—	—	—
									6 13 10
LEITRIM	13 Petty Sessional Districts of the County, viz.:—								
	1. Ballinamore	—	—	—	—	—	—	—	—
	2. Carrick-on-Shannon	—	—	—	—	—	—	—	—
	3. Carrigallen	—	—	—	—	—	—	—	0 12 0
	Cashcarrigan. *See* Kishcarigan.								
	4. Cloone	—	—	—	—	—	—	—	1 11 0
	5. Dromahair	—	—	—	—	—	—	—	2 1 6
	6. Dromod	—	—	—	—	—	—	—	0 15 6
	7. Drumkeeran	—	—	—	—	—	—	—	0 9 0
	8. Drumsna	—	—	—	—	—	—	—	0 10 0
	9. Drumshambo	—	—	—	—	—	—	—	—
	10. Kinlough	—	—	—	—	—	—	—	1 14 6
	11. Kishcarrigan	—	—	—	—	—	—	—	—
	12. Manorhamilton	—	—	—	—	—	—	—	1 17 0
	13. Mohill	—	—	—	—	—	—	—	2 3 6
	Total for the County Leitrim	—	—	—	—	—	—	—	—
									11 14 0

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
LIMERICK -	21 Petty Sessional Districts of the County, including the City of Limerick, viz.:—								
	1. Abbeyfeale - - -	—	—	—	—	—	—	—	3 9 10
	2. Adare - - - -	—	—	—	—	—	—	—	1 3 0
	Do. - - - -	—	—	—	—	—	—	—	0 3 10
	3. Askeaton - - -	—	—	—	—	—	—	—	0 17 6
	4. Ballingary - - -	—	—	—	—	—	—	—	0 12 0
	5. Ballynneety - - -	—	—	—	—	—	—	—	0 12 0
	6. Bruree - - -	—	—	—	—	—	—	—	0 18 10
	7. Bruff - - - -	—	—	—	—	—	—	—	0 18 0
	8. Castleconnel - -	—	—	—	—	—	—	—	1 3 0
	9. Croom- - - -	—	—	—	—	—	—	—	1 13 0
	10. Galbally - - -	—	—	—	—	—	—	—	0 18 0
	11. Glin - - - -	—	—	—	—	—	—	—	1 16 3
	Do. - - - -	—	—	—	—	—	—	—	0 18 3
	12. Hospital - - -	—	—	—	—	—	—	—	1 12 6
	13. Kilfinane - - -	—	—	—	—	—	—	—	0 8 6
	14. Kilmallock - - -	—	—	—	—	—	—	—	0 9 6
	15. Limerick City - -	0 16 3	—	—	—	—	—	0 16 3	3 6 0
	16. Do. Petty Sessions	—	—	—	—	—	—	—	1 2 0
	17. Murroe - - -	—	—	—	—	—	—	—	1 1 6
	18. Newcastle - - -	—	—	—	—	—	—	—	1 16 0
	19. New Pallas - - -	—	—	—	—	—	—	—	1 18 6
	20. Rathkeale - - -	—	—	—	—	—	—	—	1 4 3
	21. Patrickswell - -	—	—	—	—	—	—	—	1 2 0
	Total for the County Limerick - -	0 16 3	—	—	—	—	—	0 16 3	29 4 3
LONDONDERRY	15 Petty Sessional Districts of the County, including the City of Londonderry, viz.:—								
	1. Bellaghy - - -	—	—	—	—	—	—	—	—
	2. Claudy - - -	—	—	—	—	—	—	—	—
	3. Coleraine - - -	—	—	—	—	—	—	—	—
	4. Draper's Town - -	—	—	—	—	—	—	—	—
	5. Dungiven - - -	—	—	—	—	—	—	—	—
	6. Eglington - - -	—	—	—	—	—	—	—	—
	7. Garvagh - - -	—	—	—	—	—	—	—	—
	8. Innisrush - - -	—	—	—	—	—	—	—	—
	9. Kilrea - - - -	—	—	—	—	—	—	—	—
	10. Londonderry City -	—	—	—	—	—	—	—	—
	11. Do. Petty Ses.	—	—	—	—	—	—	—	—
	12. Maghera - - -	—	—	—	—	—	—	—	—
	13. Magherafelt - - -	—	—	—	—	—	—	—	—
	14. Moneymore - - -	—	—	—	—	—	—	—	0 16 0
	15. Newtonlimavady - -	—	—	—	—	—	—	—	—
	Total for the County Londonderry -	—	—	—	—	—	—	—	0 16 0
LONGFORD -	11 Petty Sessional Districts of the County, viz.:—								
	1. Ballynamuck - -	—	—	—	—	—	—	—	—
	2. Ballinalee - - -	—	—	—	—	—	—	—	0 7 0
	3. Ballymahon - - -	—	—	—	—	—	—	—	—
	4. Carrickboy - - -	—	—	—	—	—	—	—	0 6 0
	5. Drumlish - - -	—	—	—	—	—	—	—	—
	6. Edgeworthstown - -	—	—	—	—	—	—	—	0 4 0
	7. Granard - - -	—	—	—	—	—	—	—	—
	8. Kenagh - - -	—	—	—	—	—	—	—	—
	9. Lanesboro' - - -	—	—	—	—	—	—	—	0 5 0
	10. Longford Town - -	—	—	—	—	—	—	—	—
	11. Newtownforbes - -	—	—	—	—	—	—	—	—
	Total for the County Longford - -	—	—	—	—	—	—	—	1 2 0
LOUTH - -	10 Petty Sessional Districts of the County, viz.:—								
	1. Ardee - - - -	—	—	—	—	—	—	—	—
	2. Carlingford - - -	—	—	—	—	—	—	—	1 18 6
	3. Caslebellingham - -	—	—	—	—	—	—	—	0 14 0
	4. Collon - - -	—	—	—	—	—	—	—	0 9 0
	5. Dundalk - - -	—	—	—	—	—	—	—	—
	6. Dunleer - - -	—	—	—	—	—	—	—	—
	7. Louth - - - -	—	—	—	—	—	—	—	—
	8. Mell - - - -	—	—	—	—	—	—	—	—
	9. Ravensdale - - -	—	—	—	—	—	—	—	—
	10. Termonfeckin - -	—	—	—	—	—	—	—	0 9 0
	Total for the County Louth - - -	—	—	—	—	—	—	—	3 10 6

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Mayo - -	24 Petty Sessional Districts of the County, viz. :—								
	1. Achil - - - -	—	—	—	—	—	—	—	—
	2. Balla - - - -	—	—	—	—	—	—	—	—
	3. Ballaghadereen - -	—	—	—	—	—	—	—	—
	4. Ballina - - - -	—	—	—	—	—	—	—	—
	5. Ballindine - - -	—	—	—	—	—	—	—	—
	6. Ballinrobe - - -	—	—	—	—	—	—	—	—
	7. Ballycastle - - -	—	—	—	—	—	—	—	0 6 0
	8. Ballycroy - - -	—	—	—	—	—	—	—	1 0 0
	9. Ballyglass - - -	—	—	—	—	—	—	—	—
	10. Ballyhaunis - - -	—	—	—	—	—	—	—	—
	11. Belmullett - - -	—	—	—	—	—	—	—	—
	12. Castlebar - - -	—	—	—	—	—	—	—	4 8 0
	13. Claremorris - - -	—	—	—	—	—	—	—	—
	14. Cong - - - -	—	—	—	—	—	—	—	—
	15. Crossmolina - - -	—	—	—	—	—	—	—	—
	16. Foxford - - -	—	—	—	—	—	—	—	0 10 0
	17. Hollymount - - -	—	—	—	—	—	—	—	—
	18. Killihane - - -	—	—	—	—	—	—	—	—
	19. Killala - - - -	—	—	—	—	—	—	—	—
	20. Kilmain - - - -	—	—	—	—	—	—	—	—
	21. Louisburgh - - -	—	—	—	—	—	—	—	—
	22. Lowpark - - -	—	—	—	—	—	—	—	0 5 0
	23. Swinford - - -	—	—	—	—	—	—	—	—
	24. Westport - - -	—	—	—	—	—	—	—	—
	Total for the County Mayo - - -	—	—	—	—	—	—	—	0 2 0
		—	—	—	—	—	—	—	6 11 0
Meath, West -	*See* Westmeath.								
Meath - -	18 Petty Sessional Districts of the County, including the town and county of Drogheda, viz. :—								
	1. Athboy - - - -	—	—	—	—	—	—	—	0 3 0
	2. Ballivor - - -	—	—	—	—	—	—	—	—
	3. Crossakiel - - -	—	—	—	—	—	—	—	0 16 6
	4. Drogheda Town - -	—	—	—	—	—	—	—	—
	5. Drumconrath - - -	—	—	—	—	—	—	—	2 2 0
	6. Duleek - - - -	—	—	—	—	—	—	—	1 2 3
	7. Dunboyne - - -	—	—	—	—	—	—	—	—
	8. Dunshaughlin - -	—	—	—	—	—	—	—	—
	9. George's Cross - -	—	—	—	—	—	—	—	—
	10. Julianstown - - -	—	—	—	—	—	—	—	1 11 6
	11. Kells - - - -	—	—	—	—	—	—	—	0 4 2
	12. Longwood - - -	—	—	—	—	—	—	—	—
	13. Moynalty - - -	—	—	—	—	—	—	—	0 6 6
	14. Navan - - - -	—	—	—	—	—	—	—	—
	15. Oldcastle - - -	—	—	—	—	—	—	—	0 7 3
	16. Slane - - - -	—	—	—	—	—	—	—	0 5 0
	17. Summerhill - - -	—	—	—	—	—	—	—	—
	18. Trim - - - -	—	—	—	—	—	—	—	—
	Total for the County Meath - - -	—	—	—	—	—	—	—	6 18 2
Monaghan -	8 Petty Sessional Districts of the County, viz. :—								
	1. Ballybay - - -	—	—	—	—	—	—	—	—
	2. Carrickmacross - -	—	—	—	—	—	—	—	1 1 3
	3. Castleblaney - - -	—	—	—	—	—	—	—	—
	4. Clones - - - -	—	—	—	—	—	—	—	—
	5. Emyvale - - -	—	—	—	—	—	—	—	—
	6. Monaghan - - -	—	—	—	—	—	—	—	—
	7. Newbliss - - -	—	—	—	—	—	—	—	—
	8. Rockcorry - - -	—	—	—	—	—	—	—	—
	Total for the County Monaghan - -	—	—	—	—	—	—	—	1 1 3
Queen's Co. -	15 Petty Sessional Districts of the County, viz. :—								
	1. Abbeyleix - - -	—	—	—	—	—	—	—	—
	2. Ballacolla - - -	—	—	—	—	—	—	—	0 7 0
	3. Ballybrittas - - -	—	—	—	—	—	—	—	—

Appendix IV —*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Queen's County—*cont.*	4. Ballylinan	—	—	—	—	—	—	—	1 0 0
	5. Borris-in-Ossory	—	—	—	—	—	—	—	—
	6. Castletown and Coolrain	—	—	—	—	—	—	—	0 8 0
	7. Carlow-Graigue	—	—	—	—	—	—	—	1 0 0
	8. Durrow	—	—	—	—	—	—	—	—
	9. Maryboro'	—	—	—	—	—	—	—	—
	10. Mountmellick	—	—	—	—	—	—	—	0 11 0
	Do.	—	—	—	—	—	—	—	—
	11. Mountrath	—	—	—	—	—	—	—	0 8 0
	12. Portarlington	—	—	—	—	—	—	—	0 11 0
	13. Rathdowney	—	—	—	—	—	—	—	0 16 0
	14. Stradbally	—	—	—	—	—	—	—	—
	15. Timahoe	—	—	—	—	—	—	—	0 5 6
	Total for Queen's County	—	—	—	—	—	—	—	5 6 6
Roscommon	22 Petty Sessional Districts of the County, viz.:—								
	1. Athlone	Destroyed	—	—	—	—	—	—	0 8 6
	2. Ballinasloe	Do.	—	—	—	—	—	—	0 8 6
	3. Ballintobber	—	—	—	—	—	—	—	0 2 5
	4. Ballinlough	—	—	—	—	—	—	—	0 5 0
	5. Ballyfarnon	Destroyed	—	—	—	—	—	—	0 8 0
	6. Ballyforan	—	—	—	—	—	—	—	—
	7. Belanagare	—	—	—	—	—	—	—	—
	8. Boyle	—	—	—	—	—	—	—	1 10 0
	9. Brideswell	—	—	—	—	—	—	—	0 8 0
	10. Castlerea	—	—	—	—	—	—	—	0 4 0
	11. Coolderry	—	—	—	—	—	—	—	0 6 6
	12. Cootehall	—	—	—	—	—	—	—	1 7 0
	13. Croghan	—	—	—	—	—	—	—	0 10 0
	14. Elphin	—	—	—	—	—	—	—	0 2 6
	15. Frenchpark	—	—	—	—	—	—	—	1 5 0
	16. Keadue	—	—	—	—	—	—	—	—
	17. Kilmore	—	—	—	—	—	—	—	0 3 0
	18. Lecarrow	—	—	—	—	—	—	—	1 1 0
	19. Roscommon	—	—	—	—	—	—	—	0 7 0
	20. Ruskey	—	—	—	—	—	—	—	0 15 3
	21. Strokestown	—	—	—	—	—	—	—	0 14 3
	22. Tulsk	—	—	—	—	—	—	—	0 2 0
	Total for County Roscommon	—	—	—	—	—	—	—	10 7 11
Sligo	14 Petty Sessional Districts of the County, viz.:—								
	1. Ardnaree	—	—	—	—	—	—	—	1 12 6
	2. Ballinafa	—	—	—	—	—	—	—	1 4 0
	3. Ballymote	—	—	—	—	—	—	—	1 7 2
	4. Cooloony	—	—	—	—	—	—	—	0 13 6
	5. Coolaney	—	—	—	—	—	—	—	0 12 0
	6. Dromore	—	—	—	—	—	—	—	2 17 0
	7. Enniscrone	—	—	—	—	—	—	—	1 0 0
	8. Grange	—	—	—	—	—	—	—	2 8 6
	9. Mullaghroe	—	—	—	—	—	—	—	1 7 7
	10. Riverstown	—	—	—	—	—	—	—	1 10 0
	11. Skreen	—	—	—	—	—	—	—	1 0 0
	12. Sligo	—	—	—	—	—	—	—	3 4 0
	13. Sooey	—	—	—	—	—	—	—	1 5 6
	14. Tobercurry	—	—	—	—	—	—	—	0 11 3
	Total for the County Sligo	—	—	—	—	—	—	—	20 13 0
Tipperary - North Riding.	9 Petty Sessional Districts of the County, viz.:—								
	1. Borrisokane	—	—	—	—	—	—	—	—
	2. Borrisoleigh	—	—	—	—	—	—	—	0 10 0
	3. Cloughjordan	—	—	—	—	—	—	—	0 6 0
	4. Lorrha	—	—	—	—	—	—	—	0 17 0
	5. Nenagh	—	—	—	—	—	—	—	2 8 9
	6. Newport	—	—	—	—	—	—	—	0 14 6
	7. Roscrea	—	—	—	—	—	—	—	0 8 2
	8. Templemore	—	—	—	—	—	—	—	0 11 6
	9. Thurles	—	—	—	—	—	—	—	0 18 3
	Total for the N.R. County Tipperary	—	—	—	—	—	—	—	6 14 2

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Tipperary - South Riding.	16 Petty Sessional Districts of the County, viz.:—								
	1. Ardfinan - - -	—	—	—	—	—	—	—	—
	2. Ballynonty - - -	—	—	—	—	—	—	—	—
	3. Ballyporeen - - -	—	—	—	—	—	—	—	—
	4. Bansha - - - -	—	—	—	—	—	—	—	—
	5. Cahir - - - -	—	—	—	—	—	—	—	—
	6. Caphawhite - - -	—	—	—	—	—	—	—	—
	7. Carrick-on-Suir - -	—	—	—	—	—	—	—	0 11 4
	8. Cashel - - - -	—	—	—	—	—	—	—	0 6 0
	9. Clogheen - - -	—	—	—	—	—	—	—	—
	10. Clonmel - - -	—	—	—	—	—	—	—	—
	11. Dundrum - - -	—	—	—	—	—	—	—	—
	12. Fethard - - -	—	—	—	—	—	—	—	—
	13. Golden - - - -	—	—	—	—	—	—	—	—
	14. Mullinahone - - -	—	—	—	—	—	—	—	1 3 0
	15. New Inn - - -	—	—	—	—	—	—	—	—
	16. Tipperary - - -	—	—	—	—	—	—	—	—
	Total for S. R. County Tipperary - -	—	—	—	—	—	—	—	2 0 4
Tyrone - -	20 Petty Sessional Districts of the County, viz.:—								
	1. Aughnacloy - - -	—	—	—	—	—	—	—	—
	2. Ballygawley - - -	—	—	—	—	—	—	—	—
	3. Caledon - - -	—	—	—	—	—	—	—	—
	4. Carrickmore - - -	—	—	—	—	—	—	—	0 10 0
	5. Castlederg - - -	—	—	—	—	—	—	—	—
	6. Clogher - - -	—	—	—	—	—	—	—	—
	7. Coagh - - - -	—	—	—	—	—	—	—	—
	8. Cookstown - - -	—	—	—	—	—	—	—	—
	9. Dunmanagh - - -	—	—	—	—	—	—	—	—
	10. Dungannon - - -	—	—	—	—	—	—	—	0 17 3
	11. Fintona - - -	—	—	—	—	—	—	—	1 5 7
	12. Fivemiletown - -	—	—	—	—	—	—	—	3 6 11
	13. Gortin - - - -	—	—	—	—	—	—	—	0 5 9
	14. Newton Stuart - -	—	—	—	—	—	—	—	0 9 6
	15. Moy - - - -	—	—	—	—	—	—	—	—
	16. Omagh - - - -	—	—	—	—	—	—	—	—
	17. Pomeroy - - -	—	—	—	—	—	—	—	—
	18. Stewartstown - - -	—	—	—	—	—	—	—	—
	19. Strabane - - -	—	—	—	—	—	—	—	—
	20. Trillick - - - -	—	—	—	—	—	—	—	0 8 0
	Total for the County Tyrone - -	—	—	—	—	—	—	—	7 3 0
Waterford -	15 Petty Sessional Districts of the County, including the County of the City of Waterford, viz.:—								
	1. Ballymacarberry - -	—	—	—	—	—	—	—	—
	2. Callahane - - -	—	—	—	—	—	—	—	—
	3. Cappoquin - - -	—	—	—	—	—	—	—	—
	4. Carrickbeg - - -	—	—	—	—	—	—	—	—
	5. Clashmore - - -	—	—	—	—	—	—	—	—
	Ditto - - -	—	—	—	—	—	—	—	—
	6. Dungarvan - - -	—	—	—	—	—	—	—	—
	7. Kilmacthomas - -	—	—	—	—	—	—	—	—
	8. Lismore - - -	—	—	—	—	—	—	—	—
	9. Portlaw - - -	—	—	—	—	—	—	—	—
	10. Stradbally - - -	—	—	—	—	—	—	—	—
	11. Tallow - - - -	—	—	—	—	—	—	—	—
	12. Tramore - - -	—	—	—	—	—	—	—	—
	13. Villier's Town - -	—	—	—	—	—	—	—	—
	14. Waterford—St. Patrick's Hall.	—	—	—	—	—	—	—	—
	15. Waterford—Borough - -	—	—	—	—	—	—	—	0 18 0
	Total for the County Waterford - -	—	—	—	—	—	—	—	0 18 0
Westmeath -	16 Petty Sessional Districts of the County, viz.:—								
	1. Ballynacargy - - -	—	—	—	—	—	—	—	0 11 0
	2. Ballymore - - -	—	—	—	—	—	—	—	2 15 3
	3. Brawney - - -	Destroyed.	—	—	—	—	—	—	0 14 3

Appendix IV.—*cont.*—Abstract E. of Returns from the Local Inspectors of Weights and Measures, Ireland—*cont.*

County.	District, City, Town, &c.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Westmeath—*cont.*	4. Castlepollard	—	—	—	—	—	—	—	0 8 6
	5. Clonmellon	—	—	—	—	—	—	—	0 14 6
	6. Collinstown	—	—	—	—	—	—	—	0 8 6
	7. Delvin	—	—	—	—	—	—	—	1 14 5
	8. Glasson	—	—	—	—	—	—	—	—
	9. Kilbeggan	—	—	—	—	—	—	—	—
	10. Killucan	—	—	—	—	—	—	—	2 6 6
	11. Knockdrin	—	—	—	—	—	—	—	0 13 6
	12. Moate	—	—	—	—	—	—	—	0 19 8
	13. Mullingar	—	—	—	—	—	—	—	0 2 6
	14. Multifarnham	—	—	—	—	—	—	—	0 12 6
	15. Rathowen	—	—	—	—	—	—	—	0 19 6
	16. Rochfortbridge	—	—	—	—	—	—	—	2 18 6
	Total for the County Westmeath	—	—	—	—	—	—	—	15 19 1
Wexford	12 Petty Sessional Districts of the County, viz.:—								
	1. Arthurstown	—	—	—	—	—	—	—	3 16 0
	2. Clonroche	—	—	—	—	—	—	—	0 11 0
	3. Duncormick	—	—	—	—	—	—	—	1 13 0
	4. Enniscorthy	—	—	—	—	—	—	—	0 7 0
	5. Ferns	—	—	—	—	—	—	—	—
	6. Gorey	—	—	—	—	—	—	—	3 7 0
	7. Killinick	—	—	—	—	—	—	—	—
	8. New Ross	—	—	—	—	—	—	—	—
	9. Newtonbury	—	—	—	—	—	—	—	—
	10. Oulart	—	—	—	—	—	—	—	1 17 6
	11. Taghmon	—	—	—	—	—	—	—	1 10 0
	12. Wexford	—	—	—	—	—	—	—	0 3 0
	Total for the County Wexford	—	—	—	—	—	—	—	13 4 6
Wicklow	13 Petty Sessional Districts of the County, viz.:—								
	1. Arklow	—	—	—	—	—	—	—	0 5 0
	Ditto	—	—	—	—	—	—	—	0 10 0
	2. Baltinglass	—	—	—	—	—	—	—	1 13 0
	3. Blessington	—	—	—	—	—	—	—	1 7 0
	4. Bray	—	—	—	—	—	—	—	0 9 10
	5. Carnew	—	—	—	—	—	—	—	0 11 3
	6. Coolkenno	—	—	—	—	—	—	—	0 11 8
	7. Dunlavin	—	—	—	—	—	—	—	1 5 6
	8. Enniskerry	—	—	—	—	—	—	—	0 13 10
	9. Newton Mount Kennedy	—	—	—	—	—	—	—	0 16 0
	10. Redcross	—	—	—	—	—	—	—	0 4 0
	11. Rathdrum	—	—	—	—	—	—	—	0 17 7
	12. Tinahely	—	—	—	—	—	—	—	0 1 0
	13. Wicklow	—	—	—	—	—	—	—	—
	Total for the County Wicklow	—	—	—	—	—	—	—	9 5 8

Appendix IV.—*continued.*

SUMMARY OF ABSTRACT E.

County.	Page in Abstract.	Total Produce of Weights, &c., seized.		Total Fees for Stamping.		Total Fees for Adjusting.		Total Receipts applicable to total Expenditure.	Total Expenditure.
		Amount.	To whom paid.	Amount.	To whom paid.	Amount.	To whom paid.		
		£ s. d.		£ s. d.		£ s. d.		£ s. d.	£ s. d.
Antrim - -	236	—	—	—	—	—	—	—	16 13 0
Armagh - -	,,	—	—	—	—	—	—	—	5 13 9
Carlow - -	,,	—	—	—	—	—	—	—	1 13 0
Cavan - - -	237	—	—	—	—	—	—	—	0 11 0
Clare - - -	,,	—	—	—	—	—	—	—	—
Cork, W.R. - -	,,	—	—	—	—	—	—	—	5 17 7
Cork, E.R. - -	238	—	—	—	—	—	—	—	5 19 6
Donegal - -	,,	0 9 2	—	—	—	—	—	0 9 2	9 18 0
Down - - -	,,	—	—	—	—	—	—	—	27 2 2
Dublin City - -	239	—	—	12 8 8	—	294 15 8	—	307 4 4	507 13 1
Dublin - -	,,	—	—	—	—	—	—	—	3 18 0
Fermanagh - -	,,	—	—	—	—	—	—	—	3 12 9
Galway, W.R. - -	,,	—	—	—	—	—	—	—	—
Galway, E.R. - -	240	—	—	—	—	—	—	—	3 0 0
Kerry - - -	,,	—	—	—	—	—	—	—	7 1 0
Kildare - -	,,	—	—	—	—	—	—	—	0 7 6
Kilkenny - -	241	—	—	—	—	—	—	—	7 6 9
King's Co. - -	,,	—	—	—	—	—	—	—	—
Leitrim - -	,,	—	—	—	—	—	—	—	11 14 0
Limerick - -	242	0 16 3	—	—	—	—	—	0 16 3	29 4 3
Londonderry - -	,,	—	—	—	—	—	—	—	0 16 0
Longford - -	,,	—	—	—	—	—	—	—	1 2 0
Louth - - -	,,	—	—	—	—	—	—	—	3 10 6
Mayo - - -	243	—	—	—	—	—	—	—	6 11 0
Meath - - -	,,	—	—	—	—	—	—	—	6 18 2
Monaghan - -	,,	—	—	—	—	—	—	—	1 1 3
Queen's Co. - -	,,	—	—	—	—	—	—	—	5 6 6
Roscommon - -	244	—	—	—	—	—	—	—	10 7 11
Sligo - - -	,,	—	—	—	—	—	—	—	20 13 0
Tipperary, N.R. -	,,	—	—	—	—	—	—	—	6 14 2
Tipperary, S.R. -	245	—	—	—	—	—	—	—	2 0 4
Tyrone - -	,,	—	—	—	—	—	—	—	7 3 0
Waterford - -	,,	—	—	—	—	—	—	—	0 18 0
Westmeath - -	,,	—	—	—	—	—	—	—	15 19 1
Wexford - -	246	—	—	—	—	—	—	—	13 4 6
Wicklow - -	,,	—	—	—	—	—	—	—	9 5 8
Grand Total -		1 5 5		12 8 8		294 15 8		308 9 9	758 16 5

Appendix IV.—*continued.*

REMARKS BY THE WARDEN OF THE STANDARDS.

It would appear from the returns from which the preceding Abstract has been made up, that during the year 1866 the total expenditure connected with weights and measures and charged on local funds in Ireland amounted to 758*l.* 16*s.* 5*d.*, and deducting the City of Dublin, where the inspection of weights and measures was then under the municipal authorities, the expenditure for the whole of the rest of Ireland was only 251*l.* 3*s.* 4*d.* The whole of this expenditure, except for the City of Dublin, seems to have been incurred for adjusting the sub-standards, no salary or other emolument having been paid to the constabulary officers, who are the *ex officio* Inspectors of Weights and Measures, for their services in this capacity.

It would also appear not to be the practice, except in Dublin, for the Inspectors of Weights and Measures to adjust the commercial weights and measures brought to them for comparison and stamping, as is frequently the case in Great Britain; or at any rate to charge any fee for such adjustment, if ever made.

But the most important point to be noticed in these returns is that no fees were charged for stamping weights and measures throughout Ireland during the year 1866, except in the City of Dublin only, viz.:—

	Total Fees for Stamping.			Total Weights stamped, as shown in Abstract D.
	£	s.	d.	
In the City of Dublin -	12	8	8	10,689

Abstract D. shows the following number of weights and measures stamped throughout Ireland in 1866—

Weights - - - -	297,090
Liquid measures of capacity - -	98,985
Dry „ „ - -	1,133
Measures of length (yards) - -	1,968
Total - -	399,176

There are 601 districts of inspection in Ireland, and this number of weights and measures were stamped in 493 districts. The Returns show that no weights and measures were stamped in 82 districts, and that no record was kept of the number stamped in 26 districts. A calculation of the total sum legally chargeable for stamping these 399,176 weights and measures according to the table annexed to the Act of 1835, makes the minimum amount to be 1,435*l.*

The following statement will show how far fees for stamping weights and measures in Ireland are legally chargeable.

The Weights and Measures Act of 1835, 5 & 6 Will. 4. c. 63., which established the present system of inspection *throughout Great Britain and Ireland*, provided for the *appointment of Inspectors of Weights and Measures by the respective local authorities.* Under § 19 the Inspectors for every county, &c., in Ireland were to be appointed by the grand juries, who were empowered to suspend or dismiss them and appoint others. The powers and duties of the Inspectors were laid down in § 21, and included the examining, comparing, and stamping of weights and measures in each district of inspection; it was also provided that the fees for such examination, "comparison, and "stamping shall be according to the scale contained in the "Schedule to this Act annexed." The Schedule of Fees annexed bears the following title, "Schedule of Fees to "be taken by all Inspectors of Weights and Measures "appointed under the authority of this Act."

§ 24 provided that every Inspector shall, once in every quarter of a year, account to the Treasurer of the county, &c., or to such other persons as shall be duly authorized by those by whom he may have been appointed, for all fees received by him under this Act, and shall pay the amount thereof to such Treasurer, or other persons, as aforesaid, who shall duly account for the same.

In 1860, the Act 23 & 24 Vict. c. 119. was passed "to "amend the law relating to weights and measures in "Ireland." This Act contained several new provisions, the principal of which substituted such of the constabulary as should be appointed by the Inspector-General, with the approval of the Lord Lieutenant, as *ex officio* Inspectors of Weights and Measures in place of the Inspectors appointed by the grand juries. No portion of the Act 5 & 6 Will. 4. c. 63. was repealed by the amending Act, except so much of § 19 as required grand juries in Ireland to appoint the Inspectors, and the Inspectors so appointed were no longer to exercise the duties of inspection.

Neither the Act of 1860, nor the further amending Act of 1862, 25 & 26 Vict. c. 76., defined the powers and duties of the new *ex officio* Inspectors, or contained any provision for fees payable for stamping weights and measures in Ireland; but both Acts declared that the *ex officio* Inspectors were to exercise and possess all the powers and authorities, and perform the duties of the Inspectors appointed under the Act 5 & 6 Will. 4. c. 63.

There can hardly be a doubt, therefore, that the fees for stamping weights and measures which are stated in the schedule of the Act of 1835, are still legally chargeable.

The question of the levying of these fees, and their application when received, is however one which deserves further consideration, as will now be shown.

Previously to the passing of the Act of 1860, the grand juries in Ireland, who appointed the Inspectors, were also "to direct what reasonable remuneration shall be paid to "such Inspectors," and under § 22 all such remuneration was to be provided for and paid by presentments on the counties, &c.* On the other hand, all fees for stamping weights and measures were made payable to the treasurer of the county.

Upon the transfer of these powers and duties connected with the inspection of weights and measures from the local authorities and their subordinate officers to the constabulary in 1860, the duties of the local officers and their remuneration by the local authorities ceased. But no additional pay or other remuneration was awarded to the constabulary for the additional duties thus imposed upon them; the Acts both of 1860 and 1862 expressly providing that they shall perform such duties without fee or reward.

So long as the expenses of inspection of weights and measures in Ireland was defrayed from the local rates, it was obviously proper that the fees received by Inspectors should be paid over in aid of the local rates. But now that the local rates are released from this charge (with the exception of a comparatively small amount for incidental expenses), and that the cost of inspection is in fact now paid out of the public revenue, the right course seems to be that the fees received for stamping by Inspectors should be paid to the public revenue. Under the law as it now stands, the fees for stamping weights and measures should have been levied by the Inspectors and paid quarterly to the County Treasurer, and it would require a fresh enactment before they could be paid into the Exchequer. It is suggested that this is a subject to which the attention of the Treasury authorities should be drawn. There can be no just reason why the same fees which are chargeable by law both in Great Britain and Ireland should be uniformly levied in Great Britain and tacitly abandoned in Ireland.

* It appears from a return made in 1836, and appended to the Report of the Committee of County Cess, Ireland (Commons Paper, No. 527, App. p. 146), that up to Midsummer in that year the total amount of salaries assigned to Inspectors of Weights and Measures in the several counties of Ireland was about 3,057*l.* 10*s.* per annum. In five counties no salaries had then been assigned to the Inspectors.

Standards Department, April 14, 1868.

H. W. Chisholm,
Warden.

Appendix IV.—*continued.*

Abstract of Returns from the Local Inspectors of Weights and Measures in Ireland for the Year ended December 31, 1866—*continued.*

Abstract F.—Number, Salaries, &c. of Local Inspectors.

It has not been considered necessary to give this Abstract *in extenso*, as there appears to be one Inspector of Weights and Measures for each of the 601 Districts of Inspection in Ireland, as shown in detail in the preceding Abstracts, with the exception of 21 districts, in each of which there is an additional Inspector; of one district (the City of Cork) where there are two additional Inspectors; and 11 districts, in which no Inspector is stated to have been appointed. The total number of Inspectors is therefore 624, viz.:—

Counties.	Number of Inspectors of Weights and Measures.	Districts in which there is an additional Inspector.
Antrim	27	Lisburn, 1.
Armagh	16	
Carlow	8	Carlow, P.S., 1.
Cavan	18	
Clare	21	Ennis, 1.
Cork, W.R.	22	
Cork, E.R.	35	City of Cork, 2.
Donegal	25	
Down	27	Newry, 1.
Dublin	9	
Dublin, City	2	Dublin, City, 1.
Fermanagh	13	
Galway, W.R.	23	
Galway, E.R.	15	Marblehill, 1.
Kerry	18	
Kildare	14	
Kilkenny	17	
King's County	16	
Leitrim	14	Carrick-on-Shannon, 1.
Limerick	23	
Londonderry	17	Newtonlimavady, 1. Garvagh, 1.
Longford	11	
Louth	11	Dundalk, 1.
Mayo	25	Castlebar, 1.
Meath	18	
Monaghan	9	Carrickmacross, 1.
Queen's County	17	Maryboro, 1.
Roscommon	22	
Sligo	15	Dromore, 1.
Tipperary, N.R.	9	
Tipperary, S.R.	16	
Tyrone	22	Caledon, 1. Omagh, 1.
Waterford	14	Clashmore, 1.
Westmeath	17	Mullingar, 1. Glasson, 1.
Wexford	13	Arthurstown, 1.
Wicklow	14	Wicklow, 1.
Total	613	Inspectors.

Districts for which no Inspector is stated to have been appointed.

County Donegal	Rathmullen	1
County Dublin	Swords	1
	Districts not stated	1
County Kerry	Causeway	1
	Kenmore	1
	Kilpadder	1
	Tralee	1
County Westmeath	Sueen	1
	Kilbeggan	1
County Waterford	Carrickbeg	1
	Portlaw	1
	Total	11

Under the Weights and Measures (Ireland) Acts of 1860 and 1862, such head or other constables in each petty sessional district as shall be selected by the Inspector-General of Constabulary, with the approval of the Lord Lieutenant, are to be *ex officio* Inspectors of Weights and Measures within such district.

The duties of the custody of the copies of the imperial standards in each county and borough, and of duly comparing, adjusting, and stamping all sub-standards, are to be exercised by Sub-Inspectors of Constabulary, duly appointed for that purpose by the Inspector-General, with the approval of the Lord Lieutenant. The officers so appointed are included in the preceding list of 613 Inspectors of Weights and Measures.

The following official instructions were issued to the Constabulary Officers, with reference to their duties as *ex officio* Inspectors of Weights and Measures in Ireland.

Circular No. 91.

Constabulary Office, Dublin Castle,
December 17, 1862.

Weights and Measures Act (1862), 25 & 26 Vict. c. 76.

1. As the Act above cited (copies whereof have already been supplied to the constabulary) will come into operation on the 1st proximo, the attention of the force is to be called thereto, in order to *all* its provisions being fully carried into effect on and after that date.

2. The county inspector will observe that by the 5th and 6th sections of the Act it will be necessary to appoint anew *ex officio* inspectors for the several petty sessions districts, as well as the officers who are to have charge of the county, riding, or borough standards; with which view he will be prepared to furnish me (so as that it may arrive on or before the 26th instant) with a return, in duplicate, of the names of the petty sessions districts in his county, and of the names and stations of the head or other constables whom he recommends respectively for the appointment in question. There must be at least one such inspector for each petty sessions district and one for each municipal borough. A form will be provided.

3. The county inspector will at the same time, and in a separate form (which will also be provided), name the officer (and his station) whom he recommends to be appointed to have charge of the county, riding, or borough standards, and to stamp the sub-standards, &c., agreeably to the 6th section of the said Act.

4. As the exact duties of the officer who is appointed to have charge of the county or borough standards and to stamp sub-standards, as well as those of the *ex officio* Inspectors of Weights and Measures are laid down in the Act, and have already been defined and explained in my former Circulars, it is needless to reiterate the instructions therein given. It is only requisite to observe that it is the desire of the Government that the provisions of the Act shall be vigorously enforced, and that the constabulary shall use their best exertions to detect and punish fraud, not only in the shops of trade, but also at fairs and markets, where such frauds, it is to be feared, are but too often practised. The 6th paragraph of § 14 ought, therefore, to be particularly observed.

5. It is intended to print § 14 of the Act in the form of a notice, which, when received by the county inspector, he will cause to be posted, for the information of the public, in eligible places, and especially at fairs and markets.

6. In case of any deficiency of sub-standards, scales, beams, or stamps, the county inspector will not fail to bring such under the notice of the grand jury or town council, as the case may be, in due time. There must be at least one set of sub-standards, &c. in each petty sessions district, and one for each municipal borough.

7. In the event of the removal of an officer appointed to have charge of the county or borough standards (or his ceasing, from any other cause, to hold that appointment), the county inspector will lose no time in submitting for approval the name of another officer for that purpose; and he will act in a similar manner in case of the removal of an *ex officio* inspector from any petty sessions district.

Henry John Brownrigg,
Inspector-General.

Circular No. 101.

Constabulary Office, Dublin Castle,
February 16, 1863.

Weights and Measures.

The following opinion of the law officers is promulgated for the information and guidance of the force:—

Question 1. Whether under 25 & 26 Vict. c. 76. s. 5, a notification of the selection of the constable first appointed

Appendix IV.—*continued.*

ex officio inspector is to be given to the clerk of petty sessions?

Answer 1. We are of opinion that a notification of the first selection, as well as every subsequent one, should be given to the clerk of petty sessions.

Q. 2. How the payment of the expenses to be incurred under the Act is to be enforced?

A. 2. We are of opinion that the 22nd section of the Act 5 & 6 Will. 4. c. 63. applies to the case, and that the expenses are payable by the county.

Q. 3. How the standards are to be adjusted, and on whom does that duty fall?

A. 3. The duty of providing and adjusting the standards falls upon the grand jury or town council, and is regulated by s. 15 of 23 & 24 Vict. c. 119, and s. 7. of 25 & 26 Vict. c. 76.

Q. 4. Whether under the 14th section a person weighing at the request of buyer and seller by denominations of weights other than those specified in the Act, or in a manner prohibited by the 13th section, is liable to any and what penalty, and at whose instance can the party be prosecuted?

A. 4. We are of opinion that a person knowingly weighing by other denominations than those specified in the Act, or in a manner prohibited by the Act, is liable to a penalty of 5*l.*, and may be prosecuted by the constabulary.

(Signed) Thomas O'Hagan.
James A. Lawson.

It has been already stated in the remarks on Abstract E. that no additional pay or other remuneration is awarded to the constabulary for the duties connected with weights and measures thus imposed upon them.

The whole amount of the pay and expenses of the Irish constabulary is defrayed by the Government out of the public revenue, being annually voted.

In 1866, a Treasury Commission was appointed to inquire into the pay, services, &c. of the Irish constabulary. In their report, dated 8 March 1866, which was printed and presented to both Houses of Parliament, there is no mention of the duties connected with weights and measures which are performed by the constabulary. It would appear from the report, that whilst the appointment of constable involves no preliminary examination as to the qualifications of a candidate, further than that he should be able to read and write, persons nominated as sub-inspectors are required to undergo a competitive examination, and head constables promoted to sub-inspectorships are also subjected to a competitive examination in arithmetic, geography, English composition, orthography, handwriting, and knowledge of police duties.

The Commission recommended a considerable increase in the remuneration of the constabulary. The annual pay of the constables has accordingly been since increased from a minimum and maximum of 24*l.* and 70*l.* in 1865–6, to 31*l.* 4*s.* and 80*l.* 4*s.* in 1868–9; and the pay of the sub-inspectors from 112*l.* and 180*l.* to 125*l.* and 230*l.* The several rates of pay are shown in the estimates for 1868–9.

The total number of men in the constabulary was the same in 1865–6 as in 1868–9, being fixed by law at 11,931; but the total charge has increased from 725,680*l.* to 883,751*l.* This last amount includes 98,477*l.* for pensions and gratuities. Against it there is a set off of 14,297*l.*, the probable amount repayable to the Exchequer by counties for augmentation and extra fees, *weights and measures*, &c.

I have ascertained that of this last amount the sum of 591*l.* 12*s.* 4*d.* has been the average annual expenditure of the constabulary, so repayable in respect of weights and measures, in each of the two years up to 31st March 1867, viz., for cost of car hire for conveyance of sub-standard weights and measures on inspection, and their conveyance for periodical adjustment, repairs of beams, scales, &c. At the period of the return only the two Inspectors of Weights and Measures for the City of Dublin were in the receipt of salaries for the performance of their duties.

The provisions of the Weights and Measures (Ireland) Acts of 1860 and 1862 do not apply to the police district of Dublin metropolis, and an Act was passed in 1867 (30 & 31 Vict. c. 94.) to regulate the inspection of weights and measures within this district. This Act took effect from 1 Sept. 1867, and it incorporated with it such of the provisions of the Acts of 1860 and 1862 as were not inconsistent with its provisions. Under § 4, any of the superintendents, inspectors, or acting inspectors of the Dublin metropolitan police as shall be selected by the Commissioners of the Dublin police, with the approval of the Lord Lieutenant, are to be *ex officio* Inspectors of Weights and Measures within the district, and perform the duties without fee or reward.

The pay of the Dublin metropolitan police appears to be less than that of the constabulary, the constables receiving from 40*l.* 8*s.* to 74*l.* 8*s.* per annum; the inspectors from 107*l.* to 150*l.* 12*s.* The whole charge of the pay and expenditure of the Dublin metropolitan police is paid by the Government, being annually voted. The amount for 1868–9 is 95,488*l.* 5*s.* 4*d.*, against which sum an estimated amount of 42,200*l.* is to be received from the police tax and other sources of local income, and paid into the Exchequer.

With regard to the duties of these *ex officio* Inspectors of Weights and Measures in Ireland, as laid down by the Acts of 1860 and 1862, it should be observed that they have more extended powers than are granted by law in Great Britain. They are empowered to enter all shops and other places of sale, and not only *to seize and render liable to forfeiture all beams, scales, or balances*, as well as weights and measures, which are *false* and unjust, but also *if any fraud shall be wilfully committed in the using thereof*. They are empowered to inspect the mode of weighing commodities, which is also regulated by the Act of 1862, and to prohibit improper deductions in weighing. Special provisions for the prevention of fraud in the weight, measure, or qualities of commodities for sale are also contained in this Act, and which are applicable exclusively to Ireland.

H. W. Chisholm,
Warden.

Standards Department, April 7, 1868.

Memorandum.—In forwarding a copy of this paper to the Board of Trade on 14th August 1868, attention was specially drawn to the fact of the non-payment of fees for stamping weights and measures in Ireland, and to the remarks at the close of Abstract E. Copies of the paper were thereupon transmitted on 11th September by the Board of Trade to the Treasury and to the Irish Government, with a request that they might be favoured with any observations the Lords of the Treasury or the Irish Executive might have to offer thereon.

On 22nd September the Treasury stated in reply that "My Lords do not think it desirable to take any steps for "interfering with the existing arrangements."

The following reply was received from the Irish Government:—

From the Chief Secretary, Ireland, to the Secretary, Board of Trade.

Sir, Dublin Castle, October 8, 1868.

With reference to your letter of the 11th ultimo, inclosing a confidential paper prepared by the Warden of the Standards, relative to the levying of certain fees under the Weights and Measures Acts, I am directed by the Lord Lieutenant to transmit to you the enclosed copies of reports from the Inspector-General, Royal Irish Constabulary, and the Dublin Metropolitan Police Commissioners, to whom the paper was referred. I am to state that the legality of levying the fees in question, having been submitted to the Law Officers of the Crown, they have given the following opinion, viz., "We are of opinion that these "fees are legally payable to the ex-officio Inspectors, and "that the amount collected should be applied as directed "by the 24th section of 5 & 6 Vict. c. 63. We think the "words 'without fee or reward' refer to the remuneration "paid to the old Inspectors, and not to the fees payable "by the parties charged."

(Signed) R. R. Warren.
Michael Harrison.

October 3, 1868.

Although, as appears by this opinion, the interpretation which has been practically given to the words "without "fee or reward" is erroneous, yet it was natural to assume that when the counties were relieved from the expenses of inspection it was not intended that the fees should continue to be levied for their benefit.

As stated by the Warden, further legislation would be required to authorize their payment into the Exchequer, and it will be for the consideration of the Lords Commissioners of Her Majesty's Treasury, whether those fees not having hitherto been levied under the present law, it would not now be injudicious to enforce them.

I am to add that the statement of the Warden respecting the pay of the Dublin police and the constabulary are erroneous, having been made under a misapprehension of the terms "constable," "inspector," &c., which are very

Appendix IV.—*continued.*

differently applied in the two forces. That the constabulary are better paid than the metropolitan police is altogether a mistake. This, however, is a matter of no importance as regards the main subject, as his Grace is not of opinion that the constabulary have any claim for extra remuneration for the performance of their duty as Inspector of Weights and Measures.

I am, &c.

Thomas Gray, Esq., Office of Committee of Privy Council for Trade. THOMAS LARCOM.

INCLOSURE (A.)

Report from the Inspector-General, Royal Irish Constabulary.

Submitted,

IN returning 12,319, with copy of the letter from the Committee of Privy Council for Trade, dated 11th inst., and the printed Abstract of Returns from the Local Inspectors of Weights and Measures in Ireland, and having been invited to offer any observations thereon that I may wish to make,

I would, with regard to the statement in page 76, that no mention is made in the Report of the Treasury Commission of Weights and Measures duties being performed by the constabulary, call attention to my evidence and reply to question 657, pages 45 and 46 of that report.

With regard to the increase of pay referred to by Mr. Chisholm, although it is true that the Commission did recommend a large increase in the remuneration of some ranks of the constabulary, it is nevertheless my opinion that, as a body, they are not yet adequately paid for the services they perform, in comparison with other police forces of the United Kingdom; and as it is affirmed (page 76) that the pay of the Dublin Metropolitan Police is less than that of the constabulary, I cannot permit such an error to pass unnoticed.

At page 14 of the Report of the Constabulary Commission, and at page 7 of the Dublin Metropolitan Police Commission, it will be found that in the former force the pay of a first-class head constable is 60*l.* per annum, which, increased by long service pay, is 70*l.* 4*s.*, whereas a first-class inspector in the latter force, which is of equivalent rank, has 122*l.* 4*s.* per annum, and so throughout the remainder of the grades there is a considerable difference in favour of the latter force. For instance, a sub-constable of upwards of 20 years service in the constabulary gets 42*l.* 18*s.* per annum, whilst a constable in the metropolitan police force, whose relative rank is identical gets 49*l.* 8*s.*, each of these being the lowest grade in the service. In fact the pay of the lowest grade in the metropolitan service is exactly the same as that of constable in the constabulary, which is two grades higher with proportionable responsibilities. It seems not impracticable that Mr. Chisholm has fallen into the not unnatural mistake of supposing that the term "constable" designates in the two forces, positions of equal rank and responsibilities.

In conclusion I hope I may be permitted to bring under notice that I consider some remuneration should be granted to the officers in charge of the county and borough standards, as well as to those constables who are *ex officio* Inspectors of Weights and Measures, who up to this period have been performing this branch of duty gratuitously. (In a very few instances, such as Cork, Belfast, and Limerick, the local authorities have voluntarily granted to the officer having charge of the borough standards a sum of from 10*l.* to 12*l.* per annum for their services), nor has a single complaint, that I can recollect, ever been preferred in that respect, while on the contrary, the efficiency and usefulness of the constabulary as Inspectors of Weights and Measures has been proved by the unsought testimony of the magistrates in very numerous instances.

I would therefore suggest some alteration of the law which enacts that the constabulary should discharge these useful but troublesome duties "without fee or reward," and that a sum of 10*l.* per annum be granted to the sub-inspectors who have charge of the county standards, and 5*l.* per annum to the head or other constables acting as Inspectors of Weights and Measures.

This expense might hereafter be defrayed out of the fees received for stamping, &c. I say *hereafter*, because, though I think with Mr. Chisholm that there should be a uniformity in respect of the fees chargeable and levied in Great Britain and Ireland, yet, until the irritable feeling that pervades a large portion of the population of this part of the United Kingdom shall have been removed, I question the expediency of any immediate steps to effect the assimilation referred to.

J. STEWART WOOD,
Inspector-General.

INCLOSURE (B.)

Report from the Commissioners of the Dublin Metropolitan Police.

Metropolitan Police Office, Castle, Sept. 19, 1868.

THE Commissioners of the Police have the honour to acknowledge the receipt of the Under Secretary's letter of the 14th inst., transmitting for such observations as the Commissioners may wish to make, copy of a communication from the Board of Trade and confidential report of the Warden of the Standards, on the subject of weights and measures.

The point to which the Warden directs special attention relates to the levying of fees for stamping weights and measures in Ireland. He observes "there can be no just reason why the same "fees which are chargeable by law both in Great Britain and Ireland "should be uniformly levied in Great Britain, and tacitly abandoned "in Ireland."

With respect to this question, the Commissioners beg to observe that the Act 30 & 31 Vict. c. 94. extended the provisions of the several Weights and Measures Acts to that portion of the Dublin Metropolitan Police District outside the municipal borough or boundaries. The portion of the police district thus brought under the operation of the Acts, is necessarily limited in extent, though including the populous districts of Kingstown, Rathmines, &c. This Act, however, under which the metropolitan police exercise the powers of *ex officio* Inspectors of Weights and Measures in this district expressly declares, sec. 4, that such inspectors shall perform their duties under the direction of the Commissioner of Police "without fee or reward," and, accordingly it appears also to be the case in the constabulary, no fees have been levied.

In this limited district fees for stamping weights and measures would only produce a sum necessarily small in amount; but at the same time, should the words "without fee or reward" be held to apply, as the Warden would appear to be of opinion, only to the inspectors as such, and not to the act of stamping, and do not render the table of fees prescribed by the 5 & 6 Will. 4. c. 63. inapplicable to their inspection, the Commissioners of Police do not see any objection to their being levied.

The question, it is obvious, is one of law, and the commissioners will be quite prepared to carry out any opinion of the law officers which may be given for their guidance in the matter.

JOHN O'FERRALL.

The Under Secretary,
&c. &c. &c.

APPENDIX V.

On the WEIGHTS and MEASURES of SCOTLAND and of IRELAND.

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Introduction.

Under the existing law, the only legal weights and measures recognized in Scotland and in Ireland are the imperial weights and measures, the standards of which are deposited at the Standards Department in Westminster. This has been the case with regard to Scotland since the period of the Union with that country. But with respect to Ireland separate standard weights were established by law in 1705, and were actually provided in 1825, under a further Act passed in 1824. Although this last Act was repealed in 1834, the question of establishing separate standards for Ireland was revived in 1861, and it may now be desirable to lay before the Standards Commission some detailed information upon the subject of the weights and measures both of Scotland and of Ireland.

Weights and Measures of Scotland.

No. 464 of 1834. Qu. 175, &c. Qu. 711, &c.

Some historical information as to the ancient weights and measures of Scotland, both previously to the Union, and subsequently up to 1834, was given by Mr. Jardine, and by Dr. Thomas Clark, in their evidence before Lord Ebrington's committee on the weights and measures Bill of that year.

English standards the only standards in Scotland since the union.

As to the standard weights and measures of Scotland, the Act of Union passed in 1706 provided that the English standards only should be used in Scotland. In consequence of that Act, English troy and avoirdupois standards were very generally sent down to Scotland, and that country was pretty well supplied with English standards.

Old Scotch standards.

Previously to the Union, the only standard weight of Scotland recognized by law was the French troy weight, so declared in an Act of the Scotch Parliament of 1618, and which provided that standards of that weight were to be lodged in certain towns of Scotland.

In one respect, however, the old Scotch standards were continued to be recognized after the Union by the highest authority of the law in Scotland, the Court of Session. That Court still recognized the standard troy of Scotland. They also recognized two measures, one for wheat and one for barley, and which appear to have been derived from the Scotch troy pound, as the only standard measures of Scotland in a most important matter, the ascertaining of the teinds or tithes of the whole clergy of Scotland. And in point of fact it was shown by the evidence before Lord Ebrington's Committee of 1834, that the old Scotch system of measures was at that period generally used in Scotland, and that the Act 5 Geo. 4. c. 74. for establishing uniformity of weights and measures throughout the kingdom, which was passed ten years previously, in 1824, had almost totally failed to be of any use, in consequence of the permission to have the relation to the new standard measures stamped upon the old Scotch measures.

Qu. 177, 178.

Weight of the old standard, Scotch troy pound.

It is stated as result of an examination made subsequently to 1824, of the old standard Scotch pound troy kept at Lanark, which was considered the unit of weight, and by which standard weight the stipend in meal to many of the clergy in Scotland was paid, that its actual weight was found to contain 7,609 grains. The French troy pound, however, really weighed 7,560 grains. The Scotch pound was also popularly called the Dutch troy pound, the real weight of which was 7,626 grains. But there was a popular system generally received as the actual comparison between the English standard and the Scotch standard, by which 17½ ounces avoirdupois were equal to a Scotch pound troy, and which would make the latter equal to 7,656¼ grains. The two systems, the more generally received equivalent of 7,656¼ grains, and the less generally received of 7,609 grains, both received the legal sanction of juries in determining the amount of teinds or tithes to be paid to the Scotch clergy.

Scale of Scotch weight.

Kelly.

The scale of Scotch weight was the Dutch scale,

16 drops = 1 ounce.
16 ounces = 1 pound.
16 pounds = 1 stone.

Scotch dry measure.

The unit of dry measure of capacity was the Firlot, the standard of which was kept at Linlithgow. The Linlithgow wheat firlot, used for wheat, rye, pease, beans, salt, and grass seeds, contained 21¼ Scotch pints, or 2,197⅓ cubic inches; the barley firlot, used for barley, malt, oats, fruit, and potatoes, contained 31 Scotch pints or 3,205½ cubic inches. The former was equal to $1\frac{1}{46}$ and the latter to 1½ Winchester bushel, nearly.

The dry measure also used immemorially and universally in Scotland for grain, meal, &c., was the Boll, a name only and not an invariable quantity, as its contents varied in almost every different county, and even in the same county there were sometimes three kinds of bolls, one for wheat, another for barley, and another for meal, &c. The boll was recognized in Acts of 24 Geo. 2. and 18 Geo. 3. as the legal measure for grain in Scotland, being nearly equal to six Winchester bushels. It is still commonly used in Scotland, differing in measure in the several localities, and each having its equivalent in imperial weight or measure. In Edinburgh at the present time the commonest measure for meal is called the "forpit," being the *fourth part* of a peck.

The scale of Scotch dry measure was as follows:—

4 lippies = 1 peck.
4 pecks = 1 firlot.
4 firlots = 1 boll.
16 bolls = 1 chalder.

Scotch liquid measure.

The unit of Scotch liquid measure was the Scotch pint "of just Sterline jug and measure," defined in the Scotch Act of 1618 as being "3 pounds 7 ounces of French "Troyes weight of clear running water of the water of "Leith." This "Scotch pint according to the standard "sterling jug was 103·404 English cubic inches, and 16 "Scotch pints = 6 English ale gallons."

The scale of Scotch liquid measure was as follows:—

4 gills = 1 mutchkin.
2 mutchkins = 1 choppin.
2 choppins = 1 pint.
2 pints = 1 quart.
4 quarts = 1 gallon.
16 gallons = 1 hogshead.

Scotch measures of length.

The unit of Scotch measures of length was the Scotch ell, the principal standard being the elwand or ell, kept at Edinburgh. The Scotch ell was formerly equal to 37⅕ English inches. Hence 30 Scotch ells = 31 English yards, and 80 Scottish miles = 91 English miles; the scale of Scotch long measures being:

37 inches = 1 ell.
6 ells = 1 fall.
40 falls = 1 furlong.
8 furlongs = 1 mile.

The Scotch acre was equal to 1·26118 English acre. The Scotch ell has been more recently ascertained to be = 370958 inches.

Legal equivalents of old Scotch weights and measures ascertained under Act of 1835.

The result of the inquiry by Lord Ebrington's Committee of 1834 and 1835, was the insertion of two clauses, 15 and 16, in the Act of 1835, 5 & 6 Will. 4. c. 63., by which the amount of all stipends, rents, tolls, &c. payable in grain, malt, or meal, or any other commodity or thing in Scotland, according to the weights and measures previously in use, as well as the Fiar* prices of grain in every county in Scotland, were thenceforth to be ascertained either by agreement or the verdict of a jury, and when so determined such amounts were to be converted into imperial standard weights and measures and so become payable.

* The Fiar prices signify the rates or average prices of the different kinds of grain annually fixed in Scotland, and have served as a rule for ascertaining the value in money, not only in compositions payable to the Crown, and stipends to the clergy, but also in contracts in which their prices had not been previously determined, and in sales, feus, or leases where there is an agreement that the fiars shall be the rate of payment. The origin of the term and the practice appears to be unknown.—(See Appendix to Report on Sale of Corn, Commons Paper, No. 517 of 1834, p. 62.)

Appendix V.—*continued.*

Standard Weights and Measures of Ireland.

Earliest Irish Act on record for measures in Ireland, in 1450.

The earliest legislative provision on record affecting the *measures* of Ireland is contained in the Irish Act 32 Hen. 6. c. 3., passed in 1450, and applicable to liquors only. It enacts that no man shall sell wine, ale, nor any other liquor within any city or town franchised, unless it be with the King's measures, sealed, viz.:—

The Gallon,
Pottle,
Quart,
Pint, or
Half-pint;

and whosoever doth the contrary shall forfeit the measures, and make fine of 40*s.*, half to the King and half to the city, borough, or town where the offence is made.

Definition of gallon.

No definition of the contents of the Irish gallon measure or other standard unit, is contained in this Act of 1450. At that time the legal gallon of wine in England contained 8 lbs. troy weight of wine, as established under the statute 51 Hen. 3. c. 2., passed in 1266, and confirmed in 1313 by the statute of 31 Edw. 1., the Tractatus de Ponderibus et Mensuris. In 1495, by the Irish Act 10 Hen. 7. c. 22., all English statutes concerning the public weal were thenceforth to be deemed good and effectual in Ireland. It was consequently decided by the Council of Ireland at a later period, when a controversy between the farmers of the revenue and the brewers, as to the legal measure of the ale gallon in Ireland, was brought before the Council, that the Irish gallon contained $217\frac{6}{10}$ cubical inches, being equivalent to 8 lbs. of wine, troy weight. The English standard gallon existing in 1495 was thus established as the legal gallon measure of Ireland, although only two years later than the passing of the Irish Act of 1495, a new standard measure was established in England by the Act 12 Hen. 7. c. 5., under which the gallon for both dry and liquid measures was to contain $272\frac{1}{4}$ cubical inches, or 8 lbs. of wheat, troy weight.

See Howard's Revenue of Ireland, Pref. p. xlvi.

English standard weights and measures legalized in Ireland in 1495.

It would thus appear that the then existing standard weights and measures of England were legalized as the standard weights and measures of Ireland as early as the year 1495, and were practically in general use at a still earlier period in Ireland.

Silver money weights for Ireland and corresponding standards authorized in 1683. See (A.), p. 254.

By proclamation of the 6th June 1683, the Irish Government directed the rate at which foreign silver coins should be current in Ireland, and that money weights should be made to be stamped with the number of pennyweights of the weight of the coin each represented; local standards of all these weights were also directed to be provided.

Standard measures of grain for Ireland established in 1695,

A different provision for the standard *measures* of Ireland was made in 1695 by the Irish Parliament in the Act 7 Will. 4. c. 24. for the better regulating of measures in and throughout the kingdom of Ireland. This Act established the unit of measures to be the English gallon of Henry VII., which had been confirmed by an Act of 12 Elizabeth, and contained $272\frac{1}{4}$ cubical inches.

By sect. 2 the following standard measures for Ireland were to be lodged in the Irish Exchequer, under the custody of the Lord Treasurer or Vice-Treasurer, viz.:—

The barrel, containing		32	gallons.
Half-barrel	„	16	„
Bushel	„	8	„
Peck	„	2	„
Gallon.			

Copies of these standard measures were also directed by sect. 2 to be provided in every county, city, town, &c. in Ireland, under the custody of the magistrates or local authorities, and to be verified by the treasurer; 6*d.* being chargeable for the verification of each measure. The local officers were authorized to make comparisons with these standards of all measures brought or offered to them, and to stamp them if found correct, charging 6*d.* for each measure.

Although the general provisions of this Act appear to have been made applicable to all measures throughout Ireland, yet the preamble describes the Act as passed "for "prevention of the many and great inconveniences and "discouragement to trade in this kingdom, which proceed "from the want of one certain and known measure for all "sorts of grain." Sect. 5 also limits the prohibition of the use of measures other than those provided for by the Act, to measures used for measuring any sort of grain in Ireland, under penalties as therein provided. The Act, therefore, was taken to be applicable to measures of grain only. By sect. 7 all grain was to be measured by being "stricked, without heaps, and without pressing or shaking "down."

and standard weights for Ireland in 1705.

In 1705 an Act of the Irish Parliament, 4 Anne, c. 14. was passed for regulating the weights used in this kingdom. By sect. 2 it was provided that on or before 1st August 1705 a set of just and true avoirdupois weights viz.,

1 oz.	7 lbs.	28 lbs.
1 lb.	14 lbs.	56 lbs.
4 lbs.		

should be provided at Her Majesty's charge and lodged in the Irish Exchequer under the custody of the Lord Treasurer, or the Vice-Treasurer, for the time being, "there to "be and remain as the Standard weights for this kingdom "of Ireland."

Local copies also to be provided.

Other provisions were contained in the same Act for providing copies of these standard weights for the several counties, cities, and towns of Ireland, and for determining the justness of all weights used for buying and selling, by comparisons with these standards.

Weighmasters appointed in Ireland.

Under this Act also, weighmasters were to be appointed by the local magistrates in the several counties, cities, and towns of Ireland, to execute the duties connected with these standards and commercial weights, and who were authorized to receive ½*d.* for each draught under a hundredweight, and 1*d.* for a hundredweight and upwards. Penalties were also imposed upon offenders against the Act, one moiety being allotted to the poor of the parish, and the other moiety to the informer.

Salt and meal to be sold by weight.

The Act also contained a provision that salt and meal should be sold in Ireland by weight.

Other provisions in Ireland for selling corn by weight, and for medical weights and measures.

Other provisions for the weights and measures of Ireland were subsequently made by the Irish Parliament, particularly in 1733, by the Act 7 Geo. 2. c. 15., under which all sorts of corn as well as meal were to be bought and sold by weight; and by the Act 1 Geo. 3. c. 14., in 1761, under which the regulation of weights, measures, and scales for dispensing and selling medicines, was authorized to be fixed by the College of Physicians in Ireland, in a pharmacopeia to be published by them.

No record of separate standards for Ireland being actually provided under the Act of 1705.

But no further reference appears to have been made by the Irish Parliament to the providing standards of weights and measures for Ireland, and there is no record of the provisions of the Acts of 1695 and 1705 having been practically carried into effect, or of any standards having been actually deposited in the Irish Exchequer and used for the verification of the local standard weights and measures of Ireland.

No provision in Act of Union for standard weights and measures for Ireland.

In the Act of Union there is no provision for, or reference to, separate or other standards of weights and measures for Ireland.

Standards for the United Kingdom established by Act of 1824,

The Act 5 Geo. 4. c. 74., passed in 1824, "to the end "that certain standards of weights and measures should "be established throughout the United Kingdom of Great "Britain and Ireland," and a distinct clause (22) makes all the powers, regulations, and penalties of the several weights and measures Acts of Ireland, commencing with the Irish Act 4 Anne, c. 14. applicable to the standard weights and measures, ascertained and authorized by the Act of 1824, and deposited in the Exchequer at Westminster, these being in fact the existing official standards; sect. 12 of the Act also directs copies of these Exchequer standards to be provided for the several counties, towns, &c. of Ireland.

and continued in existing weights and measures Acts for Ireland.

An Act was passed in 1860 to regulate the weights and measures of Ireland (23 & 24 Vict. c. 119., amended in 1862 by 25 & 26 Vict. c. 76.), thus constituting a separate and distinct law applicable to weights and measures in Ireland; yet the same principle was continued in force by which the justness of the local standards, and of the weights and measures of Ireland, is to be ascertained by reference to the official standards at Westminster.

Act of 4 Anne (1705) became practically obsolete.

It would thus appear that the provision of the Act of 4 Anne establishing distinct "standard weights for the "Kingdom of Ireland," became practically obsolete, even if it had ever been carried into effect.

Subsequent Act of 1824, for reviving Irish Act of 1705, and establishing standard weights for Ireland.

Another Act was, however, passed in 1824, 5 Geo. 4. c. 110., "for the indemnity of magistrates in proceedings "against persons using unlawful weights in Ireland," which recites the before-mentioned provision of the first Act of 4 Anne, c. 14., and that "the standard weights re-"quired to be provided by the said recited Act have been "lost from, or are not now to be found in the said Ex-"chequer." It then enacts that a similar set of standard weights be provided by the Treasury within one calendar month from the passing of the Act, to be deposited in the Irish Exchequer, or in such other place as the Treasury shall direct, "there to be and remain as the standard "weights for that part of the United Kingdom of Great "Britain and Ireland, called Ireland; and such weights "when so lodged shall be and are hereby declared to be "the just and true standard weights for Ireland; and all "such weights so to be provided shall be to all intents and "purposes whatever, and the same are declared to be, of

Appendix V.—*continued.*

" the same and like effect and validity for the ascertaining, " examining, trying, and sealing and regulating any other " weights whatever, * * * as if such weights were or " had been the original weights prescribed by the said " recited Act, &c."

Sect. 2 extends all the provisions of the Irish Act of Anne, as well as of all other Acts relating to any weights whatever, to the weights ascertained by this Act.

Standard weights for Ireland accordingly provided in 1824, but afterwards lost sight of. See (B.).

This Act received the Royal Assent on 24th June 1824, and a set of seven large bell-fashioned standard weights was accordingly provided and verified at the Exchequer, as the standard weights for Ireland. They were delivered to Sir Charles William Flint, the " Secretary to the Lord " Lieutenant of Ireland, resident in Great Britain." A copy of the Indenture of Verification, dated 24th July 1824, is appended. There is no further entry in the books of this department relating to these " Standard Weights for Ire- " land," nor is there any record or information of what became of them.

Correspondence in 1827 on re-verification in Dublin of weights and measures verified at the Exchequer. See (C.).

It may be worthy of notice here to refer to some correspondence with the Weights and Measures Department in 1827, which may serve as an illustration of the public inconvenience that might arise by having authoritative standards in Ireland, distinct from, or independent of the primary official standards of weights and measures in this department.

Bill introduced in 1834 providing also standard measures for Ireland, but abandoned.

In 1834 a Bill was introduced into the House of Commons, " to regulate weights and measures, and to amend " the laws relating thereto in Ireland." This Bill recited amongst others, the two Acts of 4 Anne and 5 Geo. 4. c. 110., and that neither contained any provision in regard to measures. It proposed to enact that copies of the 42 existing official standard weights and measures be provided for the several localities in Ireland, and verified " in the " Exchequer at Westminster, *or by the copies thereof sent " to the chief magistrate of Dublin.*" This Bill, after it had been amended by the Committee, appears to have been abandoned.

Repeal by Act of 1834, of 4 Anne, c. 14. (Ireland) and 5 Geo. 4. c. 110.

Another Bill for amending the Acts 5 Geo. 4. c. 74. and an extending Act of 6 Geo. 4. c. 12. was introduced in the same session by Lord Ebrington, and refered to a Select Committee. It subsequently passed as the Act 4 & 5 Will. 4. c. 49. By sect. 26. the two Acts of 4 Anne c. 14. (Ireland) and 5 Geo. 4. c. 110. were repealed, except so far as related to the duties, &c. of weighmasters.

Correspondence in 1861 between the Irish Office and the Exchequer on the question of establishing standards for Ireland. See (D.).

Some correspondence on the mode of verifying the Local Standard Weights and Measures of Ireland passed between the Irish Office and the Exchequer in 1861, and reference was made to the question of establishing standards for Ireland, under a central authority at Dublin. Lord Monteagle then expressed his opinion to be adverse to such a change in the law and practice affecting the standards of the United Kingdom. A copy of this correspondence is appended. It would appear that all the parties were unaware of the Act 5 Geo. 4. c. 110. having been in force for several years, and that standard weights for Ireland had been actually provided in pursuance of its provisions.

Opinion that authorized copies of the official standards should be verified by comparison with these standards only.

I now only concur in the opinion of the late Comptroller-General of the Exchequer that any change in the existing law and practice is to be deprecated, by which any further extension of the principle of the local verification of standard weights and measures may be allowed, but I also hold that all duly authorized copies of the official standards should be verified by comparison with these standards only. It is obvious that the local inspectors have no sufficient means of accurately comparing standards, such as are now provided in the new equipment of the standards department; and that very few, if any, persons in the several localities out of London possess sufficiently accurate means of adjusting standard weights and measures, such as are possessed by the principal scale and weight makers of this metropolis.

H. W. Chisholm,
Warden.

Standards Department,
February 12, 1868.

(A.)

Money Weights.—Ireland.

Extract from Ruding's Coinage.

1683. Great inconveniences having arisen in Ireland from the difference of weights which were made use of for the weighing of such foreign coins as had been made current there by proclamation, the Lord Deputy and Council thought fit to declare by a proclamation of June 6th, at what rate these foreign coins to be current in that kingdom.

The weights were to pass at standing weight, without weighing down the scales, and every person receiving money might receive by which side of the scale he pleased; if he used those of the payer, or if used his own, then to receive by whichever side the payer should think proper to direct. And the Council directed all the weights necessary for the silver coin to be exactly made, each weight to be stamped with the number of pennyweights in weight of the coin it represented. Standards of all the weights were to be left in the hands of sheriffs of the counties, mayors, &c. of cities for determining and preventing all differences about any weight in money. And any persons who should pay or receive money by any other weights were to be proceeded against and punished according to law as keepers and users of false and unlawful weights.

(B.)

Copy of Counterpart of Indenture of Standard Weights for Ireland.

Copy of Indenture, endorsed
" For Ireland "
" De Grave "
" Dated, 24 July 1824."

This indenture witnesseth that Sir Charles William Flint, Secretary to the Lord Lieutenant of Ireland, resident in Great Britain, hath had and received at the Court of the Receipt of His Majesty's Exchequer at Westminster from the hands of the Right Honourable the Lords Commissioners of His Majesty's Treasury, the Chamberlains of the Exchequer and their deputies there, the several brass weights following, viz.: one weight of 56 pounds, one of 28 pounds, one of 14 pounds, one of seven pounds, one of four pounds, one of one pound, and one of one ounce, bell-fashioned, all avoirdupoise, all which brass weights have been sized and sealed by His Majesty's standard weights remaining in the Exchequer aforesaid and are to be the standard weights of that part of the United Kingdom of Great Britain and Ireland called Ireland, under the provisions of the Act 5 Geo. 4. cap. 110., and are to be kept and used according to the Statutes in that case made and provided.

Stamp.

One Pound.

Fifteen Shillings.

In witness whereof to one part of these presents remaining in the said Court of the Receipt of Exchequer, the aforesaid Sir William Charles Flint hath put his hand and seal, and to the other part the seal of the said Court of the Receipt of Exchequer is fixed.

Given this twenty-fourth day of July in the fifth year of the reign of His Majesty King George the Fourth, anno Domini one thousand eight hundred and twenty-four, the words " Under Secre- " tary for Ireland, resident in London," having been erased, and the words " Secretary to the Lord Lieutenant of Ireland, resident " in Great Britain " having been interlined previous to the execution thereof.

Signed, sealed, and delivered, having been first duly stamped, in the presence of
(Signed) John Sandford, Yeoman Usher.
(Signed) Charles William (L.S.) Flint.

(C.)

Correspondence on Re-verification in Dublin of Weights and Measures verified at the Exchequer at Westminster.

Mr. William Davis to the Right Honourable the Auditor of the Exchequer.

No. 131, Great Britain St., Dublin,
August 11, 1827.

Honourable Sir,

By a recent Act of Parliament for the assimilation of weights, measures, and money, I brought from London a copy of the new weights and measures, as under, one 5 gallon, one gallon, one quart, and one pint copper measures; one 28 lb., one 14 lb., one 7 lb., one 4 lb., one 2 lb., a ½ lb., a ¼ lb., one 2 oz., and one 1 oz. After having paid for the sealing of all the weights I had in use prior to January 1826, the Lord Mayor claimed a right to seal those copy weights which I had brought into use on the 5th January 1826, and which had the London stamp on them; he promised he would charge but very little for the sealing. However, when he got them in his possession he said the charge would be *thirty shillings;* and on my complaining of this exorbitant charge, he said I had no business to bring weights and measures from England (he knowing me to be an Englishman), and that he would put them under seizure, which he did, and threatened to sell them; however, on my paying another *ten shillings,* making together *forty shillings,* he gave them up.

On their being brought home and examined, I found they had all been filed and spoiled and made incorrect, and I could not use them since. I then ordered a set of Exchequer weights, sized, sealed and forwarded to me with an indenture, bearing date the 6th day of October 1826, for which I paid fees, &c., 5*l.* 4*s.* 0*d.* I have had it hinted that if I do not have those sealed by the Dublin seal, they will be taken from me however correct; as we have only one Exchequer, and that in London, the currency weights and measures being all assimilated, I should think copy weights, &c. &c., so long as they are correct, bearing the London stamp, and in every other respect correct, cannot be seized by any local authority. Pray have the goodness to inform me if I shall be safe in using those weights. I beg to apologize for all the trouble and remain very respectfully

Honourable Sir,
Your humble servant,
(Signed) William Davis,
Grocer and Wine Merchant, 131, Great Britain St., Dublin.

2.—*The Chief Clerk of the Exchequer to Mr. W. Davis.*

Sir,

Auditor's Office, Exchequer, August 17, 1827.

In return to your letter of the 11th instant, addressed to the Auditor of the Exchequer, I have to state that it appears by the documents remaining in this office that on the 6th of October last you paid fees to the amount of 5*l.* 4*s.* upon the sizeing and sealing of certain weights and measures for your own private use.

The Act of Parliament of the fifth year of His present Majesty, chapter 74, does not appear to subject such weights and measures to any other verification than that which they may undergo at this office; but it is not in my power to inform you whether or not,

Appendix V.—*continued.*

according to any local custom established in Dublin, the Lord Mayor of that city may have a right to demand that they be submitted to any further process under his especial authority and jurisdiction.

I am, &c.

To Mr. W. Davis. (Signed) G. C. Bedford.

(D.)

Correspondence between the Irish Office and the Exchequer, on establishing Standards for Ireland.

1.—*From Mr. F. H. Burke to Comptroller-General of Exchequer.*

Irish Office, Great Queen Street,

My Lord, July 19, 1861.

Mr. Cardwell is anxious to procure, if possible, your kind assistance in enabling the Irish Government to get over a difficulty which has arisen in carrying out the Weights and Measures Act of last Session.

That Act abolished the grand jury inspectors of weights and measures, and placed the custody of the county imperial standards in the hands of constabulary officers.

The 15th section, however, enacts that no copy of the imperial standards shall be deemed legal until compared and re-verified by the Comptroller-General or some other officer of the Exchequer duly authorized by him.

This would appear to render it obligatory on every county in Ireland to send their standards to London for re-verification—an expensive and inconvenient course.

It appears from Mr. Wilson's note, however, that this is not the view taken at the Treasury, who seem to think that if one county standard be verified this county can verify theirs from them; but this too is inconvenient, as the comparison must be made in the county where the copies are to be used.

If this be the practice in England the constabulary might procure the loan of verified standards, and compare the others with them. This process would be greatly facilitated if they could obtain a set from your office; but from what Mr. Bowen tells me I fear that is impossible.

The only remedy is therefore to follow the course suggested by Mr. Wilson; but before doing so Mr. Cardwell would like to know your views upon the subject, and how far your department would be inclined to authorize such a course.

I am afraid there is no officer belonging to the Exchequer in Ireland whom you could authorize to act.

I remain, &c.

Lord Monteagle, &c. &c. (Signed) F. H. Burke.

Enclosures.

1. Mr. Wilson, Treasury, to Mr. Burke, Irish Office, dated May 8, 1861. Referring to 15th sect. of 23 & 24 Vict. c. 119., and stating his opinion that no practical inconvenience would result from the verification of sub-standards in Ireland with adjoining county sets if legal.

2. From Secretary to County Dublin Grand Jury to the Chief Secretary, April 1861; enclosing a resolution for the verification of standards in Dublin, as being less expensive and more convenient.

3. Proposed amendments for the Weights and Measures Act (Ireland), directed to Mr. Burke, Irish Office.

4. From Inspector of Weights and Measures, County of Wexford, to the Inspector-General of Constabulary, July 9, 1861; inquiring who should send standards to Exchequer for verification, &c.

5. From ditto to ditto, May 28, 1861; appointment of an inspector.

6. From Inspector-General, in reply.

7. From Secretary to Grand Jury, County of Galway, to County Inspector, March 19, 1861; as to transfer of weights and measures to constabulary, and making arrangements thereon.

2.—*From Comptroller-General of the Exchequer to Mr. Burke.*

Sir, Exchequer, July 22, 1861.

I return the papers which you forwarded to me respecting the weights and measures question. I do not feel competent to give a legal opinion; nor if I were, am I informed of the facts which regulate the authority of the constabulary of Ireland in this respect.

But, as a general principle, I presume that all official standards or legalized copies must, to ensure their validity, be brought up in proper custody, in which case I should doubt whether weights belonging to the county of Dublin could be brought up and used by the officers of the county of Cork or Galway.

If this be so, unless by a change in the law, I do not see how you could make the comparison and mark the weights compared by any acts performed out of the proper bailiwick unless when compared in this office itself. There can be no greater difficulty in sending weights and measures from Ireland than there is from Scotland, or indeed from the counties of Cumberland or Cornwall, or from Sutherland or Caithness.

The mode of effecting this is that the county or municipality sending up their weights or measures, should employ some manufacturer in London, such as Messrs. De Grave, Short, and Fanner; Nicholl and Fowler, &c., and transmit the weights and measures through them. These parties produce the weights and measures here, and have them when necessary, readjusted, stamped, and returned.

With the facilities which steam packets and railroads afford, and taking into account that the readjustment will only be required every five years for weights, and every 10 years for measures, the transmission to London will not be much more than that to Dublin.

But I could not send a set of Exchequer standards from hence for Castlebar or Londonderry to be used there on behalf of the Exchequer. I can here verify the local standards; and it must be for the local authorities that those standards are compared.

This need not require the local authorities to send each distinct separate set to London. If they have one set compared and verified within the time fixed by law they can compare with that all other sets within their bailiwick; but they could not send them out of proper custody and out of their own local jurisdiction.

To have established in Dublin a separate set of standards under a central authority would be, in fact, to create a new department of standard weights and measures, which I do not believe has ever existed in either Ireland or Scotland. It could not be created without an entire change in the law.

I have already stated that I cannot with confidence take on myself to express any legal opinion. Through the Home Office here, or the law advisers of the Lord Lieutenant in Ireland, Mr. Cardwell can obtain authoritative advice.

I should say that at the chief towns of the several counties the copies of the Exchequer standards should be lodged, and should be re-verified and tested here at the time fixed by law. The secondary local Irish standards or sub-standards, kept *in proper custody*, should be verified in like manner, but with the *local* county or municipal standards. In this way I think the integrity of the standards might be preserved without much trouble or expense.

I am, &c.

F. H. Burke, Esq., &c. &c. (Signed) Monteagle, Comptroller-General.

APPENDIX VI.

Cases illustrating the Practical Working of the Weights and Measures Acts, which have been brought under the notice of the Standards Department.

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1. Legality of earthenware mugs.

1. *Legality of earthenware mugs.*

Decision of Court of Queen's Bench, 26th January 1861.

On 26th January 1861, the question of the legality of seizing earthenware mugs used by a publican was brought on appeal before the Court of Queen's Bench (Just. of Peace, 2 Feb. 1861). Nine mugs had been seized by the Inspector of Weights and Measures, who called to inspect the publican's measures, and found these mugs on a shelf in the bar, all being deficient when compared with an imperial pint measure. The publican declared that they were mugs, and only used as mugs, they did not purport to be imperial measures and were not represented as such. Witnesses proved that they were served with beer in those cups when they meant to have and thought they were having a pint of beer, for which they paid the usual full price. The publican was convicted by the magistrate of having unjust measures in possession, and appealed to the Queen's Bench.

Judges Wightman, Crompton, and Hill concurred in dismissing the appeal, on the ground that there was evidence of the mugs being used as measures. Judge Hill added, "I think that a vessel of glass or earthenware, "though not marked, if ordinarily used by a vendor of "beer as a measure containing the same quantity as imperial measure, and if found to be unjust, is liable to be "seized under s. 28 of 4 & 5 W. c. 4. 63., and the vendor "is liable to the penalty."

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2. Legality of glass vessels, &c.

2. *Legality of glass vessels and earthenware jugs, and their correspondence with local standards.*

From a licensed victualler at Oswestry.

Cross Keys Hotel, Oswestry, Salop,
Gentlemen, December 24, 1862.

I am desired by several licensed victuallers in this locality to ask for a more clear definition of the liability of innkeepers to the law respecting *glasses* being used in the sale of ale, &c., as to their being imperial measure.

I have the Act of Parliament before me, 5 & 6 Will. 4. c. 63., and at the latter part of clause 21 it states:—"And "that nothing herein contained shall extend to require "any wooden or wicker measure, &c., or any glass or "earthenware jug or drinking cup, *though represented* as "containing the amount of any measure imperial, or of "any multiple thereof, to be *stamped; but any person "buying by any vessel represented as containing the amount "of any imperial measure*, or any multiple thereof, is hereby "authorized to require the contents of such vessel to be "ascertained by a comparison with a stamped measure, "such stamped measure to be found and provided by the "person who shall use such wooden or wicker measure, "glass, jug, or drinking cup as aforesaid," &c. The construction we put on this part of the clause is this: first, the glass does not require stamping, therefore does not come under the Inspector's notice, as it represents no measure; secondly, according to the clause, it is a question between buyer and seller. As an instance: I supply a glass of ale, and it is a question as, being measure, I say it is, and request to compare it, and found *not so*, as a matter of course I should be liable; where on earth would a trader be found (in his senses) to represent a glass, or measure imperial, that he has no control over its make, and was never intended to represent a measure.

An answer to the following questions will oblige yours, &c.:—

Is it legal for an Inspector to walk in, take down your glasses of *all* description, and, because they are not *imperial measure*, break them, summons you, and fined before a bench of magistrates?

Is an innkeeper allowed no other jugs in the house except those he represents as quarts or pints, or any imperial measure (for instance, hot and cold water jugs are used in all houses)?

Has an Inspector power to destroy quarts, pints, &c. that may hold, say a tablespoonful *more* than the imperial measure they represent?

An answer is earnestly requested, as a great anxiety to know the result of my letter exists in the locality, on account of several convictions having taken place in the neighbourhood a short time back, from the information of the Inspector of the northern division of the county of Salop.

I am, &c.
William Jones.

To the Comptroller-General or other Officer of
Exchequer for Weights and Measures,
Westminster.

From the Superintendent of the Weights and Measures Department, in reply.

Comptroller-General's Office, Exchequer,
Sir, December 26, 1862.

In reply to your letter of the 24th instant, I am directed to inform you that this Department has no official acquaintance with the local administration of the laws for regulating weights and measures, and to refer you to the Acts of Parliament relating thereto.

In case of any doubt arising as to the true construction of any of the provisions of these Acts as affecting you it might be expedient to consult your usual legal adviser.

The 35th section of the Act 5 & 6 Will. 4. c. 63. gives a right of appeal.

I have, &c.
John Bowen.

Mr. William Jones,
Cross Keys Hotel, Oswestry.

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3. Seizure of glass vessels.

3. *Legality of glass vessels, if liable to seizure, &c.*

From a china and glass warehouseman at Chard.

China and Glass Warehouse, Chard,
Sir, May 16, 1863.

Two publicans were brought before the county magistrates on Monday last, for having in their possession six glasses, each of less measure than a half-pint, and were convicted in a fine of 6*d.* each glass. The chairman, in concluding his remarks, said, "And if Mr. Glyde, or any "other, sells cups or glasses which are not of the proper "measure, they are just as liable to be summoned as the "retailer of spirits, beer, or cider."

Such a decision has taken the trade by surprise; and as the question involved is one of great interest to me, I have thought it advisable at once to solicit your opinion in the matter.

I have a stock of from two or three hundred dozen tumblers and goblets of every variety of size and pattern, and, according to the opinion held by the chairman of this bench, if a publican selects or is supplied by me with a glass that is of insufficient measure, I am liable to be convicted.

I submitted a goblet supplied to hotel keepers, and used by them exclusively for grog, holding one-third of a quart, and was told that they would be liable to seizure.

Soliciting an early reply,

I am, &c.
Richard B. Glyde.

To the Inspector-General of Weights and
Measures, London.

From the Superintendent of the Weights and Measures Department, in reply.

Comptroller-General's Office, Exchequer,
Sir, May 19, 1863.

In reply to your letter of the 16th instant, addressed to the Inspector of Weights and Measures, Somerset House, I am desired to inform you that this Department has no official acquaintance with the local administration of the laws for regulating weights and measures, and I have to refer you to the Acts of Parliament relating thereto.

In case of any doubts as to the true construction of the meaning of any of the provisions of these Acts as affecting you, it might be expedient to consult your usual legal adviser.

The 35th section of the Act 5 & 6 Will. 4. c. 63. gives a right of appeal to Quarter Sessions.

Communications relating to weights and measures should be addressed to the Comptroller-General of the Exchequer, Lord Monteagle.

I am, &c.
John Bowen.

Mr. R. B. Glyde, Chard.

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4. Legality of 3½ lb. weight.

4. *Question of the legality of 3½ lb. weight much used in Yorkshire.*

From the Clerk of the Peace, East Riding, Yorkshire.

Sir, Beverley, Sept. 1, 1863.

A weight of three pounds and a half is much used by tradesmen in the East Riding of Yorkshire. As there is no such imperial standard weight, I should feel obliged if you would inform me whether such 3½ lb. weight, when brought to the Inspector of Weights and Measures for the purpose of being compared and stamped pursuant to the 24th sect. of 5 & 6 Will. 4. c. 63., should be so stamped if found correct, and if not, whether, on an examination under

Appendix VI.—*continued.*

the 28th sect. of the Weights and Measures Act by the Inspector, such weights are liable to be seized.

I have, &c.

GEO. LEEMAN,

Clerk of the Peace for the East Riding.

John Bowen, Esq., Superintendent, &c.

Superintendent of Weights and Measures, in reply.

Comptroller-General's Office, Exchequer,

SIR, Sept. 5, 1863.

IN acknowledging the receipt of your letter of the 1st instant, I beg leave to inform you that this Department has no official acquaintance with the local administration of the laws for regulating weights and measures, and I can only refer you to the Acts of Parliament thereon for your guidance.

There is no law officer attached to this office qualified to answer with authority your questions, and it is manifest that much inconvenience would arise were this Department to undertake the duty of expounding the law for the guidance of magistrates and others, who might thereby be induced to act on insufficient grounds were they to adopt the opinion of a public officer not invested with any legal power or responsibility.

I may, however, observe that the 3½ lb. weight is not a multiple or aliquot part of the *unit or standard pound;* it is simply a *fractional part* of one of the *multiples* of the pound, and as such does not seem to be recognized by the Legislature as a weight that can be used for the purpose of buying or selling.

I may refer you to an important case in point which was decided before Mr. Maude and the Borough Court of Manchester in June 1846, when it was successfully maintained that a 3½ lb. weight could not be legally stamped or used.

I have, &c.

G. Leeman, Esq., JNO. BOWEN.

Clerk of the Peace, Beverley.

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5. Defects in Weights and Measures laws, and their administration.

5. *Want of Correspondence between Primary and Secondary Standards; Convictions for trivial deviations of Weights and Measures, resulting from inaccurate state of Local Standards.*

From Mr. Hayman, July 10, 1863.

Society for Promoting the Interests of the Trading Community,

SIR, 18A, Basinghall Street, July 10, 1863.

I HAVE been requested by this Society to solicit the favour of your attention to the serious consequences arising out of the inaccurate state of the Exchequer standards, and the present mode of administering the law relating to weights and measures.

There are three denominations of standards, *the originals, the copies, and the sub-standards.*

The originals, I believe, are bricked up in the walls of the House of Commons, and are therefore inaccessible to the public; the copies have been in constant use at the Exchequer for a period of thirty-seven years, without being once compared with the originals, or otherwise tested; but the sub-standards (which are used by Inspectors of Weights and Measures throughout the Kingdom), have to be compared by the unattested copies at the Exchequer, the weights once in every five, and the measures once in every 10 years. It is clear under these circumstances that there can be no possible correspondence or agreement between the one and the other, especially as they are all made of brass, which is peculiarly liable to generate acid and to become light.

There may be many important reasons why the standards should at all times be kept in strict accordance with the calculations upon which they were originally based (I mean not only the originals but also the copies and sub-standards), but the great necessity of keeping them accurate, so far as the interests of tradesmen is concerned, arises out of the extraordinary manner in which the law relating to weights and measures "5 & 6 Will. 4. c. 63.," is now carried out and enforced. It is to this point, therefore, that I am requested to direct your especial attention.

It is shown by Returns made to Parliament dated 31st December 1857, 11th April 1861, and 12th March 1863, which Returns were moved for by John Locke, Esq., with a view to determine the point at issue, that between 3,000 and 4,000 tradesmen are convicted every year for using or having in their possession "light and unjust" weights and measures. It appears, however, that a very large proportion of these convictions (at least nine out of ten), are for deviations of the most trifling and ridiculous character, such as a drachm of 56 lbs. (which is the 14,336th part of that weight), there are other cases still more trifling and absurd, some even in favour of the buyer. In fact the Returns disclose details which call loudly for investigation; and you will please observe that these convictions are followed by the imposition of heavy penalties and costs, the greater part of which (sometimes all) is handed over to the inspector who lays the information, and in other cases, is divided between the informer and certain other parties engaged in enforcing the law, thus holding out a strong inducement to convert an Act of Parliament passed for laudable purposes into an engine of great oppression.

It must be admitted, however, that there are cases reported in Mr. Locke's returns in which fraud was apparent, but they bear no comparison in respect to numbers with the other cases.

It is also true that all the deviations alluded to may not be traceable to the inaccurate state of the standards, there are other causes that will ever operate to produce slight deviations in all weights and measures used for business purposes, such as atmospheric influence, the tendency of certain goods with which they are brought into contact and friction occasioned by ordinary wear and tear; but whether they arise from one cause or the other, it is clear they are of so slight a character as to be beyond the power of control, and are such as must of necessity always exist.

I trust I have sufficiently shown that either from the imperfect state of the standards or from the other causes to which I have referred, or from the fact that magistrates have no discretionary power given them to dismiss cases when hearing appeals, that a grievous wrong is annually inflicted upon a very large body of tradesmen (in proof whereof please refer to the Returns), and as the Act already quoted and under which these proceedings take place, fails to provide accuracy which is so much needed (I mean in the standards), and demands absolute perfection where it is obviously impossible.

I am requested to ask whether any and what means can be adopted before Parliament adjourns, in order to protect the parties aggrieved till some more practical law shall have been enacted on the subject.

I have, &c.

JAS. HAYMAN,

Secretary.

To the Right Hon. Milner Gibson, M.P.,
President of the Board of Trade.

N.B.—Permit me to refer you to the evidence given by me before Mr. Ewart's Committee last session, which fully explains all the details of the question, and contains such practical remedies as 30 years close attention to the subject has enabled me to suggest.

Extract from Mr. Chisholm's Observations on Mr. Hayman's Letter, addressed to the President of the Board of Trade.

ALTHOUGH there has been no comparison or adjustment of the Exchequer standards since their original construction and verification, those of length and weight in 1825, and those of capacity in 1834, there is no reason to believe that any material deterioration has taken place in them. It is a mistake to suppose that the material of which the weights are composed, viz., brass, loses weight by oxidation, or exposure to the atmosphere. It was shown by the Standard Committee of 1843 that the brass pound weights had *increased* in weight by oxidation. It is true that long use and unavoidable friction would tend to diminish their weight. But great care has always been taken of these instruments at the Exchequer, and it is thought at the present time that they vary but little, if at all, from the true standard.

Mr. Hayman is incorrect in stating that the original standards are bricked up in the walls of the House of Commons. The Act 18 & 19 Vict. c. 72., for legalizing the restored standards of weight and measure, recites the fact of the original parliamentary standards being deposited *at the Exchequer*, and that those immured in the Houses of Parliament are amongst the copies of these standards which were deposited in other places.

It may be noticed that those original standards are *two* only in number, viz., the yard and the avoirdupois pound. The Exchequer standards prepared under 5 Geo. 4. c. 74., are *forty-two* in number, viz.:—

1 yard.
16 avoirdupois weights.
15 troy weights.
10 measures of capacity.

Appendix VI.—*continued.*

Any alteration or adjustment of these Exchequer standards, which are the primary instruments by which the truth and accuracy of all the legal weights and measures of the Kingdom are ultimately tested, should obviously take place under no less high scientific responsibility and supervision, and be made with the same scrupulous nicety that was judged requisite when the standards were originally constructed and verified.

An examination of the Parliamentary Returns of convictions under the Weights and Measures Acts,* to which Mr. Hayman refers, does not appear to justify the conclusions to which he has arrived, that any of these convictions are attributable to the inaccuracy of the standards, nor that "a very large proportion (at least nine out of ten) are for "deviations of the most trifling and ridiculous character." And it cannot but be observed with respect to the case he quotes, of a conviction for the deficiency of a drachm in a 56 lb. weight, being $\frac{1}{14336}$ part, that such a case appears in one instance only, and in that the person convicted had other deficient weights, amongst which was another 56 lbs., deficient 3 ozs., and a 1 lb., deficient $\frac{1}{4}$ oz. This case may be found at page 18 of the Parliamentary Paper, No. 153, Session 1861, and is as follows:—

Persons convicted.	Inaccuracy.	Penalty.	Costs.
1	Two 56 lbs.—one 1 drachm short „ one 3 ozs. „ One 7 lbs. - - - One 2 lbs.—2½ drachms short - Two 1 lb.—one ¼ oz. „ - „ one ½ drachm „ -	1*l.*	9*s.*

Upon the whole it does not appear, from the Returns in question, that the allegation is borne out of the law being harshly or unjustly strained against individuals, either on the part of the Inspectors by whom the charges were brought, or of the magistrates upon whom the duty of adjudicating upon the several cases was imposed, nor that the case is such as to call for the immediate interposition and action of the Government and the Legislature.

H. W. Chisholm,
Exchequer, July 10, 1863. Chief Clerk.

6. Complaints of practice of Inspectors.

6. *Inattention of Inspectors in comparing and stamping Weights and Measures; alterations made in Local Standards; inaccuracies in Balances and Weighing Machines; inequality of average amount of Penalties and Costs when the Inspector does or does not get a portion; inefficient and unjust system of Local Inspection.*

From Mr. Hayman, in continuation.

Society for Promoting the Interests of the Trading Community,
18A, Basinghall Street, September 26, 1863.

Sir,

I am requested to acknowledge the receipt of your communication of the 28th July last, and to assure you that there is no desire whatever on the part of this Society to raise a single point in connexion with the subject of weights and measures, except such as may be found useful in the event of future legislation; as, however, I did not appear to have made myself clearly understood in my last letter, I beg to solicit the favour of your attention to the following additional particulars:—

With regard to the standards, all I intended to suggest was that those bricked up in the walls of the House of Commons, those deposited at the Exchequer, and those used by county Inspectors, cannot possibly (under the circumstances) be in strict accordance with each other; nor was it my intention to imply that the deviations in either the one or the other were of an extensive character, especially in those at the Exchequer; these are, I am aware, preserved with great care, and are doubtless as correct as 37 years constant use (without any re-adjustment) will permit them to be.

In respect to the weights and measures used by tradesmen, and the causes why they sometimes deviate from the standards, permit me, in addition to what has already been stated, to call your attention to the fact that, if there be the slighest inattention or neglect in comparing them with the standards at the time of stamping them, inaccuracies will inevitably follow, and every deviation thus caused must necessarily be detected by the rigid mode of inspection to which they are afterwards subjected, and the trader in such a case would be convicted through the negligence of others; without, however, enlarging upon this point, I may observe, from my own personal knowledge, that although, at some of the stamping offices, the duty of stamping is carefully and properly performed, yet at others the utmost inattention prevails; many cases might be quoted to show that very large quantities both of weights and measures have been stamped in precisely the same condition in which they were tendered to the stamping officer without any comparison whatever with the standards or other test of accuracy. I may also observe that no punishment is provided by the Act for the neglect of this important duty.

Another point of considerable importance arises out of the necessity of the county standards being in precisely the same condition when used by Inspectors to examine the tradesmen's weights and measures as they were at the time of stamping the same; cases of very recent occurrence might be instanced to show that the Inspector's standards were altered and adjusted during the interim referred to, and that the tradesmen of the entire district are all at this moment thus rendered liable to the penalties of the Act. In fact, every time an Inspector's standards are adjusted (at the period named in the Act) the tradesmen are in imminent danger of being fined.

In addition to the deviations in weights and measures arising out of the foregoing causes, I may also allude to the inaccuracies sometimes found to exist in beams, scales, and weighing machines. It appears that there is a far greater difficulty in manufacturing and preserving the proper action of these than is generally supposed. There are two circumstances to which I would beg to direct your special attention in reference to this point, both calculated to involve tradesmen in the penalties of the Act; first, there is a very large quantity manufactured in the provinces, and sent to all parts of the kingdom, of a very inferior description, made of the worst materials, and in the most unskilful manner; the poorer class of tradesmen specially are much in the habit of purchasing these for the sake of cheapness; but although they appear to the eye (when not in use) to balance, yet they are entirely devoid of any real accuracy, and many of them are not only wholly unfit for use, but are certain to subject those who use them to the penalties of the Act. Secondly, there is another point in connexion with beams and scales equally calculated to involve tradesmen in the penalties of the law, I now allude to those made of the very best materials, and manufactured in the most skilful manner, by respectable scale makers. It appears to be the custom of the trade to vie with each other who shall make them most accurate, and consequently the pivots upon which they are made to turn are all worked up to the nicest possible point; it is certain, however, that every attempt at extreme accuracy (much less perfection) has a tendency to defeat its own object. Beams, scales, and machines so made are necessarily liable to get out of order after being but a very short time in use. If a quantity of these superior made beams, scales, and machines (including those used by Inspectors) were compared together very few would be found to act in exact unison with each other.

I am also requested to direct your attention to the somewhat striking fact that, in those localities where the penalties and costs are paid into the county or city fund, the sums imposed are comparatively small. In the city of Westminster the returns show an average of 4*s.* 2*d.* each case, in the city of London and several other parts they are equally low, whereas in other localities they are extremely high, in the Tower Hamlets (where the Inspector gets half the penalties) the average is 1*l.* 4*s.*, the gross amount in the Tower Hamlets for one year was 381*l.* 12*s.*, half of which was paid to the Inspector, in addition to his salary.

The entire system of inspecting weights and measures is most inefficient and unjust, and differs in almost every locality, whilst it greatly annoys and injures the fair trader; it nevertheless fails to afford any adequate protection whatever to the public against fraud and dishonesty. In the public streets especially (where it is a common practice to defraud the poor of half of their proper quantity), there the duties of the Inspector are greatly neglected. The Returns show that during the whole year ending the 25th March 1862, there were only four convictions for offences committed in the public streets throughout the entire public district of the metropolis.

I should not have deemed it necessary to trouble you with these minute details, but from the extreme manner

* No. 15 of 1859, 153 of 1861, 94 of 1863.

Appendix VI.—*continued.*

in which the laws still continue to be enforced against tradesmen. It appears that no regard whatever is paid by Inspectors when the weights and measures and weighing machines in a tradesman's shop are all exactly correct save one. The law makes no distinction, be the deviation ever so slight, but is rigidly enforced, even in that case, and not only so, but it makes no difference whether the deviation be in favour of or against the buyer, neither is any distinction drawn between small weights and machines used in selling tea and other expensive articles, or large weights and machines used in the sale of cheap articles. The Returns show that several convictions have actually taken place for a few drachms used in selling coals.

In conclusion, I trust the additional details which I have now the honour of submitting to your consideration will suffice to show the urgent necessity that exists for speedily amending an Act which manifestly punishes the innocent and gives encouragement to the guilty.

I have, &c.

JAMES HAYMAN.

The Right Hon. Milner Gibson, M.P.,
President of the Board of Trade.

P.S.—I have taken the liberty to forward herewith specimens both of the defective standards and weights and measures referred to.

Mr. Chisholm's Observations, in reply.

WITH respect to the Exchequer standards, Mr. Hayman's letter requires no reply, the necessity of their adjustment being admitted.

As to the weights, &c. used by tradesmen, Mr. Hayman complains both of the existing laws and the mode in which it is carried out by the Inspectors and local authorities.

1. As to the neglect of the Inspectors.

The law *does* "provide a punishment for the neglect of "this important duty." Section 29 of 5 & 6 Will. 4. c. 63. imposes a penalty of 5*l.* upon any Inspector stamping any weight or measure without duly verifying the same by comparison with a copy of the imperial standard, or for a breach of any duty imposed upon him by the Act.

2. As to the inaccuracy of the local standards, and their alteration when adjusted.

The object of the existing provision of the law for the re-verification of the local standards within fixed periods of no long duration, was to prevent any such inaccuracy, and the necessity of any material alteration of these standards. This point, therefore, has been duly considered by the legislature, and provided for in the year 1859 by the Act 22 & 23 Vict. c. 56.

3. As to penalties inflicted for inaccuracies of beams, scales, and weighing machines.

The Act 22 & 23 Vict. c. 56., sections 2 and 3, has most properly provided for the protection of the public by imposing penalties on the use of any false or unjust beam, scale, or balance, as well as any light or unjust weight and measure. Surely no person can with any fairness complain of these provisions.

In all these cases there appears no ground whatever for any alteration of the law.

But Mr. Hayman complains also of the "extreme "manner in which the law is enforced against tradesmen," both by the Inspectors and the local authorities. It is to the latter only that this complaint can apply, as the Inspectors have no power whatever of inflicting penalties. But it appears to be no part of the functions of the Board of Trade to express an opinion upon the mode in which the magistrates execute the duties imposed upon them by law. The truth of the maxim *summum jus summa injuria* may be admitted, though it is to be hoped that it will apply to few of the cases to which Mr. Hayman refers, and that practically the more lenient maxim is observed—*de minimis non curat lex.*

H. W. CHISHOLM,
Exchequer, October 7, 1863. Chief Clerk.

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7. Proposed amendments in Weights and Measures Acts.

7. *Proposed alterations in Weights and Measures Acts, 5 & 6 Will. 4. c. 63.*

*Mr. Chisholm's Observations on Mr. Hayman's Suggestions to the President of the Board of Trade, June 9, 1864.**

MR. HAYMAN suggests that a short Act should be passed for enabling magistrates to dismiss cases in which persons are charged with using "light or otherwise unjust weights "and measures," under 5 & 6 Will. 4. c. 63. s. 28., when it is apparent that no fraud is intended.

As to giving further power to magistrates to dismiss cases such as those to which Mr. Hayman refers, there does not appear any sufficient reason for further legislation, either as regards the present provisions of the law or the mode in which it is now carried out, from the information furnished by the returns of convictions which have been made to Parliament.

The words of section 28 of the Act 5 & 6 Will. 4. c. 63. are that "if it shall appear that the said weights or measures "are light or otherwise unjust, the same shall be liable to "be seized and forfeited." These words do not appear to compel any magistrate to convict in cases of very small deviations where there has been neither apparent fraud or negligence on the part of the tradesmen, and where there has been no practical injustice towards the public.

But Mr, Hayman complains "that the magistrates seem "bound under the Act to convict even when the deviation "is in favour of the buyer." Of course they are, if the weights should be found unjustly heavy. All tradesmen are buyers as well as sellers, and there is quite as much injustice towards the public when a tradesman who buys from the public uses too heavy weights, as when he uses too light weights in his sales to the public. Take the first case of this kind which appears in the last Return of Convictions (No. 11 of 1864, page 3). It is that of a marine store dealer convicted of using defective weights, one too light and three too heavy. Considering that the greater part of the business of a marine store dealer consists in buying from the public, the reasonableness both of the law and of this conviction is evident.

Mr. Hayman refers to the fact of the Inspectors, who are the informers, getting a large portion of the penalties and costs.

Under sect. 28 of 5 & 6 Will. 4. c. 63. both magistrates and inspectors are empowered to enter shops and inspect weights, measures, and balances, which, if upon examination they are found light or otherwise unjust, are liable to be seized and forfeited, and the persons in whose possession they are found are, upon conviction, to forfeit a sum not exceeding 5*l.*

The magistrates before whom parties are convicted are empowered, under section 32 of the Act, to award a portion of the penalty, not exceeding a moiety, to the informer if they "shall think fit." The law thus leaves to the discretion of the magistrate to determine in each case whether the informer shall get any portion of the penalty, and this appears to be a reasonable provision, taking also in consideration that the remuneration to the Inspector is provided for by section 22 of the Act to be made out of the county and other rates. It is thus to the administration of the law, rather than the law itself, that Mr. Hayman's complaint would apply. No distinct provision as to awarding costs to the informer appears in the Act.

The clause above quoted may, perhaps, be open to the construction that magistrates may themselves lay information, and thus themselves get a portion of the penalty. In his letter to the Comptroller-General of the Exchequer, dated 9th February 1859 (page 9 of Commons Paper, No. 188 of 1859), the Astronomer Royal appears to refer to the possibility of this construction being acted on, and cites as a point deserving attention, "the impropriety of permitting "any part of a fine to go to the committing magistrates (a "practice which it is asserted is followed in some cases)." But there is no evidence of the occurrence of such cases further than the assertion of Mr. Hayman in his letter to the Home Secretary, dated 15th January 1859, that "in "many localities the Inspector who gets the cases up re-"ceives half every penalty, and in other instances the "chairman before whom the appeals are heard also gets "half;" neither does Mr. Hayman now refer to such cases.

In point of fact, it appears to be the practice generally in the country districts of England, as it is throughout Ireland, for the police to act as Inspectors of Weights and Measures, and for no part of the fines to be awarded to them. It is chiefly in some of the metropolitan districts, and in cities and towns not under the jurisdiction of the county police, where this practice obtains of a moiety of the fine being awarded to the Inspector, who is really the informer. The special case of the city of Westminster may be noticed, where it is not the Inspector of Weights and Measures, but the High Bailiff of Westminster or his deputy for the time being, who is entitled to one moiety of fines to be received and taken to his own use.

The increasing practice of appointing inspectors of police to execute the duties of Inspectors of Weights and Mea-

Appendix VI.—*continued.*

sures, without further remuneration will, doubtless, prevent any injustice, such as Mr. Hayman complains of, from occurring through an Inspector receiving part of the penalties as the informer. But, on the other hand, there is the danger that it may also tend to check his exertions in discovering and seizing fraudulent and unjust weights and measures.

H. W. Chisholm,
Exchequer, June 1864. Chief Clerk.

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8. Complaints of convictions.

8. *Law and practice of convictions under Weights and Measures Acts; complaints against local Inspectors; stamping of local and customary measures.*

Mr. Hayman to the President of the Board of Trade, in continuation.

Society for Promoting the Interests of the Trading Community,
Sir, 18A, Basinghall Street, Jan. 6, 1866.

I had the honour of addressing you on the 10th of July 1863, and on the 9th of June 1864, soliciting the favour of your attention to the numerous cases of extreme hardship and injustice annually inflicted upon a large body of tradesmen by reason of the imperfect state of the Exchequer standards, and the rigid and illegal manner in which the penalties and costs under the Act 5 & 6 Will. 4. c. 63. are imposed and applied.

2. It will be unnecessary to repeat the facts already stated. Permit me, however, to inform you that there is no improvement whatever in the system referred to; on the contrary, the standards have not been adjusted, notwithstanding the necessity pointed out by the Comptroller-General of the Exchequer and the Astronomer Royal, nor has the law been in any way altered or amended.

3. Under these circumstances I am requested in again addressing you to assure you that it is with much regret that the gentlemen for whom I act feel themselves again urgently called upon to ask your serious attention to details of somewhat perplexing and difficult character, especially as you have, doubtless, so many heavy and important duties devolving upon you.

4. But lest you should suppose that so much attention to minute details in the matter of weights and measures is improper and uncalled for, I may be allowed to add that such is the opinion of this society; also there can be no doubt (the returns prove it) that not only the original standards and the various copies, but also a large majority of the weights and measures used for ordinary purposes are sufficiently correct for all practical and business purposes, and that the public are in no way prejudiced by their use; but the difficulty is that the present enactment, 5 & 6 Will. 4., requires a perfect impossibility, viz., "absolute and un- "deviating accuracy," imposing its penalties upon every occasion, however slight and from whatever cause arising; and then, as if to render escape impossible, it first gives half the penalty to the informer, and then shuts out the magistrate who hears the case from all discretionary power. When it is considered that the penalties and costs are divided between the Inspector, the police, the magistrates' clerk, and sundry others, it is clear that justice cannot be had.

5. I am unwilling to make any remarks that may have the appearance of personal feeling, but I cannot help directing your attention to the district of Newington; that division is a very extensive one, and the duty for 30 years has been performed by an Inspector whose calls on the tradesmen were very seldom, in many cases not more than once in 5, 10, or 20 years. Within the last few months, however, the Inspector having departed this life, two others have been appointed, who are altogether as vigilant in performing their duties; the consequence is that a very large number of persons are now placed in jeopardy, and suffering most severely through trifling inaccuracies.

6. Cases have recently come to my own knowledge in that district where 20 weights and half-a-dozen scales belonging to a greengrocer were all perfectly correct (having been adjusted every three months), *except one* small deviation, and for this the fine was inflicted; and a publican, carrying on a large trade and living next door, was waited on, and all his measuring pots were found correct, and so also all his other pots, save one pint which had a small dent in it; for this also he was fined, and his reputation as an honest man seriously called in question.

7. I hesitate not to say that in any other court of law in this kingdom the parties would have been called on for their defence, and if enabled to show no injury had been done, and no fraud committed, all idea of punishment would have instantly been dismissed. In the district referred to the penalties are far heavier than in any other, and when called upon (on the motion of Mr. Locke) to make a return to Parliament as to the extent and nature of each inaccuracy, in order that Parliament and the public might know whether any, and what, fraud had been committed, the reply of "*no record kept*" has invariably been made. (See Mr. Locke's returns.)

8. I am clearly of opinion that the improper application of the penalties and costs is the cause of all the difficulty; and I think if Inspectors were remunerated by a salary (as in the city), and especially if the law was altered so that there should be a limited time for adjusting the standards, and reasonable space given to tradesmen to get their weights and measures adjusted in cases where the deviation is slight, in that case I think Inspectors would be induced to pay far more attention to fraudulent cases and less to technical deviations.

9. Should the law be altered, I trust all persons who send goods to public markets in local and customary measures will be prevented from defrauding the retail dealer (to the great extent which they now do), by being compelled to mark the same with the amount of the imperial weight or measure of the article therein contained; the Act alluded to is entirely at fault in this respect.

10. May I beg the favour of asking whether any Bill is intended to be brought in on the subject during the ensuing session?

I am, &c.
Jas. Hayman,
Secretary.

N.B.—Estimating the number of tradesmen in Great Britain at 200,000, Mr. Locke's return shows that only 40 out of that number were convicted during a period of three months in the penalty indicating dishonesty, viz., 40*s.* and upwards, thus demonstrating that the tradesmen as a body ought not to be stigmatised as dishonest.

To the Right Hon. T. Milner Gibson, M.P.,
President of the Board of Trade.

Official Remarks on Mr. Hayman's Letter of Jan. 6, 1866.

"There can be no doubt that the original standards and the various copies are sufficiently correct for all practical and business purposes, and that the public are in no way prejudiced by their use." (See Mr. Hayman's letter, paragraph 4.)

1 and 2. Complaint against Exchequer Standards.

Mr. Hayman has overlooked section 32 of the Act of which he complains, which permits the magistrate, "if he "thinks fit," to give the informer "a moiety" of the penalty, and directs the remainder to be paid to the treasurer of the county, city, or town where the conviction occurred.

4. Complaint that magistrates have no discretionary power.

I presume that in those cases where the Inspector, as informer, is awarded "a moiety" of the penalty, the magistrates being well acquainted with the local requirements of their district, give the moiety as a wholesome stimulant to encourage the Inspector to discharge his duty. It is well known to me that in many places where the Inspectors are not awarded a moiety of the penalties, they only care to obtain a sufficient number of convictions by which to make some show for the salaries they receive, and that they do not keep pace either with the extension of trade, or with any increase of dishonesty in their respective districts.

Latter part of Part 4 and Part 8. Complaint that the Inspector is awarded half the penalty.

The following is a list of the penalties under the Act 5 & 6 Will. 4. c. 63. The occasions for them do not appear to be slight, nor the penalties extreme:—

4. Complaint that the occasions for the penalties are slight.

	Penalty not to exceed
§ 6. All persons to sell by imperial measure	40*s.*
§ 7. No person to sell by heaped measure	40*s.*
§ 9. Coals to be sold by weight, and not by measure	40*s.*
§ 16. Fair prices of grain, in Scotland, to be struck by imperial measure	5*l.*
§ 20. Irish County Treasurer to obtain standards on order of judge of assize	50*l.*
§ 21. Any person using by any other weight or measure than those authorized by this Act, or any unstamped or light or otherwise unjust weight or measure	5*l.*
§ 25. Inspector knowingly stamping any weights, &c., of any person out of his district	20*s.*
§ 26. Irish Weigh-Master to obtain standards	20*l.*
„ Such standards not to be used for other uses	5*l.*
„ And to be locally compared every five years	5*l.*

Appendix VI.—*continued.*

	Penalty not to exceed
§ 28. Any person selling, using, or having in possession any unjust steel-yard, or other weighing machine -	5*l.*
,, Any person hindering an Inspector -	5*l.*
§ 29. Any Inspector guilty of misconduct -	5*l.*
§ 30. Forging stamps under this Act -	10*l.* to 50*l.*
,, Knowing, selling, &c., weights and measures with forged stamps -	40*s.* to 10*l.*
§ 31. Any clerk of market, or other person, printing any price list or other paper containing any other than Imperial weight or measure -	10*s.* each copy.
§ 34. Persons not having sufficient goods upon which to levy distress when fines are not paid, to go to prison for two months.	

9. Complaints that the weights and measures used at public markets are not stamped.

If Mr. Hayman complains because the Act does not direct all weights to have the contents marked upon them, he has overlooked section 12 of the Act 5 & 6 Will. 4. c. 63.; "all weights which shall be made after the passing of this "Act shall have the number of pounds contained in every "such weight stamped or cast on the top or side thereof in "legible figures and letters."

7. Complaint that in every case where the weights or measures are found inaccurate, a fine is inflicted.

If a tradesman, by carelessness or neglect, allows his weights or measures or scales to become unjust, or if a person by wilful fraud deliberately alters or reduces weights or measures, or tampers with his scales, in both cases the public equally suffer, and injury is done. In the first case, the public suffer until the tradesman finds that his weights or measures are worn, or that his scales require adjustment, or until his shop is visited by the Inspector. In the other case, the public suffer until the dishonest person is convicted of dishonesty. The magistrate cautions the careless tradesmen by inflicting a slight penalty, but punishes the fraudulent with as heavy a fine as the law allows. The necessity for thus cautioning careless tradesmen is shown in part five of Mr. Hayman's letter, when he complains that at Newington the old Inspector so seldom visited the shops (once in 5, 10, or 20 years) that a large number of shopkeepers are now placed in jeopardy by reason of two vigilant Inspectors having been recently appointed. Mr. Hayman forgets that for the five, ten, or twenty years during which the Inspector forgot to visit them, their customers were paying the penalty of these shopkeepers' carelessness.

5, 7, &c. Complaints against Inspectors.

The magistrates have now thought fit to appoint two Inspectors for Newington, as that district has much increased since the late Mr. Wade was appointed (1834). The Inspectors are appointed by the magistrates, and Mr. Hayman's complaint should be addressed to them, as they are doubtless well acquainted with the requirements of their Inspectors' districts, and have power to punish their Inspectors for misconduct. (See sec. 29, 5 & 6 Will. 4. c. 63.)

HENRY J. CHANEY,
Assistant Superintendent.

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9. Further complaints of practice of Inspectors.

9. *Alleged inaccuracy of Official Standards and of Local Standards; irregular stamping of incorrect Weights, &c., by Inspectors; difficulty of making and maintaining accurate balances; temptation to Inspectors by giving them half the penalties; most convictions thus caused; unjust convictions for trivial errors; requests investigation.*

Mr. Hayman to the President of the Board of Trade, in continuation.

Society for Promoting the Interests of the Trading Community,
18A, Basinghall Street, London,
January 11, 1867.

SIR,

IN consequence of numerous convictions which have for a long series of years, and especially recently, taken place against tradesmen, "for using or having in their "possession light or otherwise unjust weights, measures, "or balances" (words admitting of no exception under any circumstances), and the extreme injustice of convicting innocent persons of so serious an offence, this society has been induced to institute a searching investigation into the subject, the result of which I have now the honour to lay before you, and am requested to solicit the favour of your early and serious attention thereto.

First, as to the standards. In order to the maintenance of uniform accuracy in the weights and measures used for ordinary purposes throughout the kingdom, it is absolutely necessary that the original standards (from whence alone accuracy can be derived) should be strictly correct. So far, however, from this being the case, it appears that by some extraordinary oversight, they (formerly known as the Exchequer, but now as the Board of Trade, standards) have been for more than forty years in constant use at the Exchequer, (for testing the accuracy of the secondary standards used by Inspectors of Weights and Measures) without having themselves been once tested or re-verified during the whole of that period. They are now, however, about to be adjusted and re-adjusted every five years, in conformity with the 29 & 30 Vict. c. 82. s. 4., which process will doubtless involve the necessity of the weights being made heavier and the measures corrected.

As regards the secondary standards used by Inspectors, it is enacted by the 22 & 23 Vict. c. 56. s. 1. that these shall not be deemed legal unless the weights be adjusted in every five, and the measures once in every 10 years. As, however, this is done at periods far distant from each other, and as some are much more used than others, it is certain that at this moment they are considerably at variance with each other in every part of the kingdom. In fact, it appears that if exposed to air and continuous use, the 56 lb. weight will decrease at least from four to five drachms in the period stated, and the smaller weights in proportion. Nevertheless, the 5 & 6 Will. 4. c. 62. s. 4. (which remains unrepealed), makes them all legal whether accurate or not; and the 29 & 30 Vict. c. 82. s. 5. further enacts that "errors "may be tolerated" in these standards, not so, however, in the tradesmen's weights and measures.

I trust I have stated sufficient to show that deviations ever have, and probably ever will, exist in the standards; and it is somewhat singular that no notice whatever is given to the tradesmen when these deviations are found to exist, or when the standards are altered, except when subsequently visited by the Inspector and fined.

I am anxious, however, not to be misunderstood as attaching any blame whatever to the gentlemen having the custody of such standards at the Exchequer. On the contrary, I have reason to know that the duties of that department have been uniformly conducted with the strictest regard to accuracy so far as circumstances would permit.

But there are other circumstances in addition to the inaccurate state of the standards, all operating to produce deviations, more or less extensive, in the tradesmen's weights and measures, and all equally beyond the reach of their control. I allude to the fact that sufficient care is not always taken to ascertain the correctness of weights and measures before stamping them. At some of the stamping offices very great irregularity prevails in this respect, either on the part of the stamping officer, who is usually the Inspector also, or the person (I presume illegally) deputed by him. In fact, I have known very large quantities stamped without any comparison whatever with the standards, or other proof of accuracy. In most of these cases the Inspector derives an advantage from errors of his own committing, and the tradesman is made the sufferer. Then, again, it is the practice to stamp weights that are too heavy (to allow for their decreasing), although the tradesman is liable to penalties for having such weights in his possession.

Another and most important source of deviation may be traced to the almost insurmountable difficulty of manufacturing an exact balance, or correct beam and scales, and especially in preserving their proper action. The full extent of this difficulty is known only to persons in the trade.

As regards those used by Inspectors, the pivots on which the beam turns is worked to such an extreme fine point, for the sake of accuracy, that after being used for a very short time they get out of order, and give a most uncertain result. The very attempt at extreme accuracy defeats its own object. Hence the great care required in using them in testing the accuracy of tradesmen's weights, while the pivot of those used for ordinary purposes (except the smaller ones and those used in the sale of tea and other expensive articles), are so made as not to admit of the beams moving at all, unless a certain amount of pressure be brought to bear upon it, which operates to the injury of the seller, and as regards inferior made beams and scales, such a poverty compels the small shopkeepers and poorer class of tradesmen to use (particularly machines made to stand on the counter and turn on six pivots, all of which must of necessity act in precise harmony with each other). These, on the other hand, are made of such inferior materials, and so unskilfully finished off that even when new, very few are capable of any correct action. For this reason the poorer class of traders especially are in constant danger of being fined.

I may refer to one other cause of deviation, viz.:—friction, atmospheric influence, ordinary wear and tear, and the

Appendix VI.—*continued.*

effects produced by certain goods with which tradesmen's weights and measures are necessarily brought into contact; but these are too obvious to need comment.

I beg respectfully to submit, that to the inaccurate state of the standards, to the misconduct of some of the stamping officers, to the difficulty connected with the proper action of beams and scales, to ordinary wear and tear, as also to the great temptation held out to Inspectors in giving them one-half of the penalties, and all the costs, must be attributed a very large majority of the convictions against tradesmen; whilst, on the other hand, it is to be regretted that many, far too many, cases are traceable either to unjustifiable neglect, or to the wilful and dishonest conduct of the parties convicted; and I may state that this remark seems to be borne out by sundry Returns made to Parliament from 1860 to 1865, on the motion of Mr. Locke, by which it appears that upwards of 4,000 convictions for these offences take place annually throughout Great Britain, but that less than 200 persons have had the penalties imposed upon them, which indicate fraud, viz., 40*s.* and upwards; the other cases having all been more or less insignificant, such as 1 drachm, ½, ¼, and ⅛ of a drachm; and some are described as "light," meaning the bare turn of the scales, whilst in other cases, if fifty weights and measures have been found right, and only one wrong, the penalty has been imposed, and I may remark that the consequences following these convictions have been disastrous to the parties. The returns also show extreme irregularity, both as to the amount of the penalties and costs imposed, and the unjust and illegal application thereof.

The law as it now stands "tolerates errors" where accuracy is most of all needed, exacts perfection where it is utterly impracticable, holds out a strong temptation to Inspectors to take advantage of every trivial inaccuracy, and lastly, denies to magistrates, (the only reliable parties) the right of dismissal of cases, however insignificant, and from whatever cause arising, even when perfectly satisfied that no fraud or injustice was either committed or intended. Thus, hundreds if not thousands of respectable families, whose reputation for integrity and upright dealing was beyond dispute, have been either seriously injured or entirely ruined.

Under these circumstances I have been requested respectfully to express a hope that you will not permit any alteration to take place in the Board of Trade standards, nor tolerate any errors in the secondary standards, until the matter has been thoroughly investigated, lest by so doing, the evils to which I have referred should be increased, nor until some suitable provision has been made for protecting the general body of tradesmen from the serious consequences to which they have been so long subjected.

I have, &c.
JAS. HAYMAN,
Secretary.

To the Right Hon. Sir Stafford Northcote,
Bart., M.P.,
President of the Board of Trade.

Extract from the "South London News" of December 22, 1866.

EIGHT hundred and eight South London tradesmen have been fined during the present year at the Newington Sessions for having in their possession unjust weights and measures.

This army of law-breakers was made up of as follows:—250 publicans, 147 chandlers, 120 greengrocers and coal-dealers, 95 bakers, 81 butchers, 40 grocers, 24 marine store dealers, 10 cheesemongers, 8 eating-house keepers, 7 oilmen, 6 woolstaplers, 6 fishmongers, 5 milkmen, 3 confectioners, 3 corn dealers, 3 zinc workers, 2 ironmongers, 2 rope and sail makers, and 1 cider seller. Several of the foregoing have been fined twice, thrice, and some even four times, while the majority are church and chapel going "respectable" men and women!

The fines inflicted amounted to a total of 1,285*l.* 16*s.* 6*d.*

There seems to be a determination in this district to blacken the character of the tradesmen at all risks. The late Inspector was appointed in 1834, and pocketed 2,000*l.* the first year in stamping fees (through a defect in the Act), after that he received 300*l.* a-year salary, and half of the penalties. In 1866 two Inspectors were appointed in his stead (the work of inspection having previously been *very greatly* neglected), who also get half the penalties, amounting, with the salary to 521*l.* 9*s.* 1½*d.* per year for each.

Mr. Locke's returns show that no record is kept of the extent of the deviations in respect to former convictions in this district, so that for the most trifling inaccuracies persons may be fined over and over again in the full penalties, and actually ruined, unless some restraint be put to so cruel a system.

Remarks on Mr. Hayman's Letter, by the Warden of the Standards.

MR. HAYMAN'S letter is little more than a repetition of several previous letters addressed by him to the Board of Trade during the last few years.

Though they may be incorrect as *standards*, the correction and adjustment of the official weights and measures will probably be found to have no appreciable effect upon the weights and measures in common use, or upon any convictions in connexion with them.

There is much more force in his observations upon the condition of the local standards, and upon the mode in which the Local Inspectors perform their duties, as well as upon balances. On these subjects I have collected much information, which, including Mr. Hayman's communications, will probably be found deserving of the serious consideration of the Standard Commission and of the Board of Trade.

It is absolutely necessary to make legal provision for the errors to be allowed in the official comparisons of standards, as the minutest deviation is shown by the elaborate apparatus now used. It is, however, very doubtful whether any allowance should be tolerated in the comparison of weights and measures in common use, in which a far greater error than that to be allowed in the comparison of standards, would, in most cases, not be detected at all. The weight of evidence hitherto is entirely against such allowance. But this question is proposed to be specially submitted for the consideration of the Standard Commission.

Mr. Hayman states that he has "known very large "quantities of weights and measures stamped without any "comparison whatever, with the standards or other proof "of accuracy,"—and that "it is the practice to stamp "weights that are too heavy, to allow for their decreasing." With regard to these allegations, and to others respecting the practice of Local Inspectors in procuring convictions, more especially in the Newington district, it appears to be desirable that Mr. Hayman should have an opportunity of proving his charges before an authorized tribunal, by whom also the Inspectors should be heard on the other side. The re-appointment of the Standard Commission, with sufficient powers for those objects, may be found of great public advantage.

H. W. CHISHOLM,
Warden of the Standards.

Standards Department,
January 21, 1867.

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10. *Further Statements as to obtaining convictions under Weights and Measures Laws; negligent adjustment by scalemakers.* 10. Complaint of convictions in Islington.

From Mr Hayman, in continuation.

Society for Promoting the Interests of the
Trading Community,
18A, Basinghall Street, London,
GENTLEMEN, January 22, 1868.

I HAVE taken the liberty to forward herewith two extracts from the "Islington Gazette." My object in so doing is to solicit the favour of your attention to what appears to me a somewhat new discovery as regards the discrepancies so frequently found to exist in the weights and measures used by tradesmen. I allude to the negligent conduct of the men sent round by certain scalemakers to adjust the tradesmen's weights and measures.

In the parish of Islington, as in most other parts, the practice has been to convict indiscriminately all persons summoned for having in their possession "light or other-"wise unjust weights, &c.," paying little or no attention to any defence that might be offered; and this has been done under an impression that the law gave to magistrates no discretionary power to dismiss complaints.

Consequently, on the 16th of August last, 106 persons—80 for short weight and measure, and 26 for overweight—had to appear; and all were fined in the short space of 4½

Appendix VI.—*continued.*

hours, being one case in every 2½ minutes. (*See* Enclosure No. 1.)

On the following court day, 12th December last, 70 other persons were summoned, amongst whom were also 21 for overweight. On this occasion the authorities took a different view of the law, and withdrew all the 21 cases; and in addition to this (much excitement having been created by the hasty mode of hearing the former cases) the magistrates thought proper to hear what the tradesmen had to say in their defence. The result (as may be seen by reference to Enclosure No. 2) went to show that out of that large number of cases very few tradesmen were deemed guilty of any fraudulent intention, the blame in most instances resting with the parties referred to.

I have made some inquiry on the subject, and the scale-makers do not deny the difficulty in getting men to pay proper attention to this part of their duty.

There is one other point to which I would take the liberty of referring, viz., the system of stamping. It is customary at some stamping offices to require that all weights brought to be stamped be somewhat heavier than the standard, whilst at others they are required to be exact. This regulation, although intended for the protection of the user, has its disadvantages, as it is impossible to know the different business in which the same will have to be used.

It is much to be feared that so long as any pecuniary inducement is held out to persons to lay informations—to which may be added the great facility of obtaining convictions in courts of petty sessions—just so long great injustice will be done to the fair trader; and the best remedy that strikes me is to follow the example of the City of London, which is to pay the inspectors by a fixed salary; to empower them to put a mark of condemnation in all cases of slight deviation, and to summons only where fraud is apparent; and, lastly, to send in a written statement every week of their labours.

Apologizing for troubling you at such length,

I have, &c.

JAS. HAYMAN,
Secretary.

To Her Majesty's Royal Commission on Weights and Measures.

ENCLOSURE No. 1.

(THIS is an extract from the "Islington Gazette," August 20, 1867, containing a statement of the proceedings at a Petty Sessions held at the Vestry Hall on August 16, 1867, for adjudicating on summonses taken out by the parochial authorities against tradesmen for having on their premises illegal weights and measures. It is stated that the proceedings on this occasion disclosed an unusually small number of cases where false weights and measures were kept by tradesmen with intent to defraud the public; and although in many cases the defects arose from carelessness, and the magistrates expressed their belief that no fraud was intended, they were compelled by the Act of Parliament to inflict a fine, as the statute gives no discretionary power to them, except between the infliction of the minimum and maximum penalties. The report is in considerable detail, and states in each case the name of the tradesman summoned. The following abstract shows, in a tabulated form, the order in which the cases were heard, the tradesmen summoned, the defective weights, measures, &c., the decision of the magistrates, and the remarks made in the report.)

Order of Hearing.	Tradesman.	Defective Weights, Measures, &c.	Decision.	Remarks in Report.
			£ s. d.	
1	Licensed victualler	1 quart, 1 pint measures	Fined 0 10 0 and costs	Carelessness.
2	Do.	1 pint measure, 1 quart and 2 pint pots	„ 1 2 6 „	Neglect.
3	Beershop keeper	2 measures for pennyworths of beer	„ 0 10 0 „	Pleaded ignorance.
4	Licensed victualler	2 quarts, 1 pint measures	„ 1 2 6 „	Carelessness.
5	Do.	1 quart, 4 pint pots	„ 1 5 0 „	Neglect.
6	Do.	1 quart, 3 pint pots	„ 1 0 0 „	3rd offence.
7	Do.	1 pint and 1 half-pint measures, 3 quart, 1 pint pots.	„ 1 15 0 „	Carelessness.
8	Beershop keeper	1 quart, 1 pint measures	„ 0 15 0 „	Pleaded ignorance.
9	Licensed victualler	1 quart measure, 2 quart pots	„ 0 17 6 „	———
10	Beershop keeper	1 quart measure, 3 quart, 2 pint pots	„ 2 2 0 „	———
11	Do.	1 quart, 3 pint, 1 half-pint pots	„ 0 15 0 „	Carelessness.
12	Licensed victualler	3 quart pots	„ 0 15 0 „	———
13	Do.	1 quart, 3 pint pots	„ 1 0 0 „	Carelessness.
14	Do.	3 pint pots	„ 0 15 0 „	———
15	Do.	4 quart, 2 pint pots	„ 1 10 0 „	———
16	Beershop keeper	½ pint measure, 2 pint pots	„ 0 17 6 „	———
17	Licensed victualler	2 pint measures, 1 pint pot	„ 1 0 0 „	2nd offence.
18	Do.	7 pint pots	„ 1 15 0 „	———
19	Do.	1 quart, 2 pint measures, 1 pint pot	„ 1 7 6 „	———
20	Beershop keeper	1 quart, 2 pint pots	„ 0 15 0 „	———
21	Do.	1 quart, 1 half-pint measures	„ 0 15 0 „	———
22	Licensed victualler	1 quart, 1 half-pint measures	„ 0 15 0 „	———
23	Beershop keeper	2 quart, 1 pint pots	„ 0 15 0 „	———
24	Licensed victualler	1 quart, 1 pint, 1 half-pint measures, 1 pint pot.	„ 1 7 6 „	Carelessness.
25	Beershop keeper	3 quart, 1 pint pots	„ 1 0 0 „	Neglect.
26	Do.	2 quart measures, 2 quart pots	„ 1 5 0 „	2nd offence and cautioned.
27	Licensed victualler	1 quart, 1 pint measure, 1 quart, 3 pint pots.	„ 1 5 0 „	———
28	Do.	4 quart, 6 pint pots	„ 2 10 0 „	———
29	Do.	1 quart measure, 2 quart, 1 pint pots	„ 1 7 6 „	———
30	Do.	1 quart, 1 pint measure	„ 0 15 0 „	Pleaded illness and unable to attend to business.
31	Do.	1 quart measure, 4 pint pots	„ 1 7 6 „	Neglect.
32	Do.	1 quart measure, 1 quart, 1 pint pot	„ 0 17 6 „	2nd offence.
33	Beershop keeper	1 pint measure, 2 pint pots	„ 0 17 6 „	———
34	Licensed victualler	2 pint measures, 1 quart pot	„ 2 0 0 „	5th offence, cautioned.
35	Do.	1 pint measure, 4 quart, 9 pint pots	„ 3 12 6 „	Just taken possession; Messrs. Meux the brewers fined. No imputation of fraud.
36	Beershop keeper	1 measure	„ 0 5 0 „	———
37	Licensed victualler	1 quart measure, 1 pint pot	„ 0 12 6 „	———
38	Beershop keeper	1 quart, 1 pint measure	„ 0 15 0 „	———
39	Licensed victualler	1 pint measure, 1 quart, 2 pint pots	„ 1 2 6 „	———
40	Do.	2 quart, 1 pint pots	„ 0 15 0 „	Alleged old measures and not used.
41	Do.	1 quart, 3 pint pots	„ 1 0 0 „	Neglect.
42	Do.	2 pints, 2 half-pint measures, 7 pint pots.	„ 3 5 0 „	Alleged new tenant, and the pots used only till he could get new ones.
43	Do.	1 quart, 1 pint measures, 1 quart, 2 pint pots.	„ 1 10 0 „	Neglect.
44	Beershop keeper	1 pint pot	„ 0 5 0 „	———
45	Licensed victualler	7 pint, 1 half-pint pots	„ 2 0 0 „	Neglect.
46	Do.	1 pint measure, 4 pint pots	„ 1 7 6 „	2nd offence.
47	Beershop keeper	4 quart pots	„ 1 0 0 „	———
48	Licensed victualler	1 quart, 7 pint pots	„ 2 0 0 „	2nd offence.
49	Do.	2 pint measures	„ 0 15 0 „	———
50	Do.	1 quart, 1 half-pint measures, 1 quart, 1 pint, 1 half-pint pots.	„ 1 10 0 „	3rd offence.
51	Beershop keeper	1 quart measure, 2 quart, 1 pint pots	„ 1 2 6 „	———
52	Greengrocer	A 7 lb., 4 lb., 2 lb., 1 lb. weights	„ 0 5 0 „	———

Appendix VI.—*continued.*

Order of Hearing.	Tradesman.	Defective Weights, Measures, &c.	Decision.	Remarks in Report.
			£ s. d.	
53	Corn dealer	Scales nearly ½ oz. out	Fined 0 5 0 and costs	Neglect.
54	Greengrocer	Weights, 2 of 2 lb., a 1 lb., ¼ lb.; 1 light, 3 heavy.	„ 0 5 0 „	Fault of scalemaker.
55	Confectioner	2 of ¼ lb., a 2 oz., and 1 oz., light	„ 0 5 0 „	———
56	Butterman	A 1 lb., 2 of ¼ lb., a 2 oz., all heavy	„ 0 5 0 „	Porcelain weights, stated to be notoriously heavy, and liable to be affected by damp.
57	Baker	A 14 lb., 7 lb., 4 lb., 2 lb., all heavy	„ 0 5 0 „	
58	Oilman	2 of 4 lb., a 2 lb., 1 lb., 3 of ½ lb., a ¼ lb., all heavy.	„ 0 5 0 „	Solicitor heard for defence but lowest fine inflicted.
59	Confectioner	A 4 lb. (heavy), a ¼ lb., 2 oz., 1 oz., ½ oz. (light).	„ 0 10 0 „	———
60	Greengrocer	2 of 2 lb., a 1 lb., ½ lb., ¼ lb., very light.	„ 0 5 0 „	———
		2 pairs of scales defective	„ 0 5 0 „	———
61	General dealer	A ½ lb., ¼ lb., ½ oz., heavy	„ 0 5 0 „	———
62	Pork butcher	2 of 1 oz., a ½ oz., light	„ 0 5 0 „	———
63	Greengrocer	4 of 1 lb., heavy	„ 0 5 0 „	Fault of scalemaker.
64	Do.	2 of 1 lb., 2 of ½ lb., a ¼ lb., heavy	„ 0 5 0 „	Do.
65	Cheesemonger	A ½ lb., light, a ½ lb., and ¼ lb., heavy	„ 0 5 0 „	———
66	Oilman	A 1 lb., ½ lb., ¼ lb., light	„ 0 5 0 „	Fault of scalemaker.
67	Do.	A 1 lb., ½ lb., ¼ lb., heavy	„ 0 5 0 „	———
68	Greengrocer	A ¼ lb., heavy	„ 0 5 0 „	Defendant very angry.
69	Grocer	2 of 14 lb., a 1 lb., heavy	„ 0 5 0 „	Fault of scalemaker.
70	Marine store dealer	A 14 lb., 2 of 4 lb., a 1 lb., and ½ lb., light.	„ 0 10 0 „	———
71	Butcher	A 14 lb., 7 lb., 4 lb., 2 lb., 1 lb., ½ lb., 2 oz., 1 oz., light.	„ 0 12 6 „	———
72	Do.	A 1 lb., ½ lb., ¼ lb., heavy	„ 0 5 0 „	———
73	Cheesemonger	2 of 1 lb., 1 ¼ lb., light	„ 0 10 0 „	———
74	Baker	A 1 lb., ½ lb., 2 of ¼ lb., heavy	„ 0 5 0 „	Porcelain weights; alleged fault of scalemaker.
75	Greengrocer	A 14 lb., 12 oz. short of standard	„ 0 5 0 „	Proved to have been left by scalemaker in place of another taken to be repaired.
76	Leather seller	2 of 7 lb., 2 of 4 lb., a 2 lb., 2 of 1 lb., 2 of ½ lb., heavy.	„ 0 5 0 „	———
77	Chandler	A 7 lb., 4 lb. 2 lb., 1 lb., heavy	„ 0 5 0 „	———
78	Greengrocer	A 14 lb., ½ lb., ¼ lb., light	„ 0 10 0 „	———
79	Marine store dealer	A 14 lb., 7 lb., 4 lb.; heavy to buy with	„ 0 10 0 „	3rd offence.
80	Butcher	A 14 lb., 2 of 7 lb., 4 lb., ¼ lb., heavy	„ 0 5 0 „	———
81	Greengrocer	A 2 lb., light	„ 0 5 0 „	———
		Scales ⅜ oz. out	„ 0 5 0 „	———
82	Do.	A 4 lb., 2 lb., 1 lb., light	„ 0 5 0 „	———
		Scales very defective	„ 0 7 0 „	———
83	Butcher	A 14 lb., ½ lb., ¼ lb., heavy	„ 0 5 0 „	———
		Scales ¼ oz. out	„ 0 5 0 „	Defence, did not use the scales.
84	Greengrocer	A ½ lb. (heavy), 2 of 14 lb., a 2 lb., 1 lb., light.	„ 0 10 0 „	Fault of scalemaker.
85	Costermonger	A 1 lb., ½ lb., light	„ 0 5 0 „	———
		Scales 1 oz. out	„ 0 5 0 „	———
86	Marine store dealer	2 of ¼ lb., heavy	„ 0 5 0 „	Nearly new, fault of scalemaker.
87	Corn dealer	A 14 lb., 7 lb., 1 lb., ½ lb., ¼ lb., heavy	„ 0 5 0 „	———
88	Oilman	A 7 lb., 4 lb., ½ lb., light	„ 0 5 0 „	Carelessness.
89	Chandler	A 2 oz., 2 of 1 oz., 2 ½ oz., light	„ 0 5 0 „	———
90	Coal dealer	A 14 lb., 2 of 7 lb., heavy	„ 0 5 0 „	———
91	Chandler	2 of ½ lb., a ¼ lb., heavy	„ 0 5 0 „	———
92	Baker	A 4 lb. and 2 lb., defective	„ 0 10 0 „	2nd conviction.
		Scales ½ oz. out	„ 0 5 0 „	
93	Grocer	A 7 lb., 4 lb., 2 lb.	„ 0 5 0 „	———
94	Marine store dealer	A 7 lb., 4 lb., 1 lb., ½ lb., ¼ lb., heavy to buy with.	„ 0 10 0 „	Proved fault of scalemaker who alleged the standards were wrong and was reproved by the Court.
95	Chandler	A ½ lb., ¼ lb., 2 oz., light	„ 0 5 0 „	———
96	Greengrocer	2 of 1 lb., a ½ lb., heavy	„ 0 5 0 „	Fault of scalemaker.
97	Plumber	A ½ lb. (heavy), a 14 lb., 7 lb., 4 lb., light.	„ 0 5 0 „	Defence that nothing was bought or sold on the premises, and weights used to measure work.
98	Beershop keeper	1 quart measure, 2 quart and 1 pint pots.	„ 1 0 0 „	———
99	Butterman	Weights, a 4 lb. and ¼ lb., heavy	„ 0 5 0 „	———
100	Confectioner	A 2 oz. and ½ oz., light	Deferred.	———
101	Ironmonger	A 2 oz., light	Dismissed.	———
		Total fines	77 19 0	

Enclosure No. 2.

(This is an extract from the "Islington Gazette" of 10th December 1867, stating the proceedings at a Petty Sessions held at the Vestry Hall on the previous day to hear summonses taken out by the parochial authorities against tradesmen having on their premises illegal weights and measures. It is stated that, as on the occasion of the last sessions, the number of cases in which there was evidence of an intention to defraud was very small; that a large number were fined for having weights telling against themselves; and in nearly every instance it was proved that these had been adjusted by scalemakers who contracted to keep them in order, and who seemed to have almost wilfully made them tell in favour of the purchaser. Several of these scalemakers appeared in Court, and attempted to justify their conduct, first, by stating that it was usual to allow for a draft; and, secondly, by impugning the correctness of the parish standards. During the proceedings a vestryman addressed the Bench, and warned the magistrates that in every case where the weights and measures were seized before the 9th October conviction would be illegal, as the parish standards were not compared with those of the Standards Department before that date. The clerk to the magistrates stated that the standards were compared on 8th October, and that no seizures were made till after that date.)

The following is a tabular arrangement of the cases heard as stated in the report:—

Appendix VI.—*continued.*

Order of Hearing.	Tradesman.	Defective Weights, Measures, &c.	Decision.	Remarks in Report.
			£ s. d.	
1	Eating-bouse keeper -	5 weights heavy and 1 light -	Fined 0 5 0 and costs	Earthenware weights liable to absorb moisture.
2	Cheesemonger - -	6 weights heavy and 1 light -	„ 0 5 0 „	No apparent intention to defraud.
3	Dairyman - -	6 weights heavy - -	Summons withdrawn on giving up the weights.	Adjusted by scalemaker 14 days before seizure.
4	Licensed victualler -	3 quart measures defective -	Fined 0 5 0 and costs.	
5	Beershop keeper -	1 quart and 2 pint pots defective.	„ 0 15 0 „	Carelessness.
6	Licensed victualler -	1 quart measure, 1 quart, 1 pint pot defective.	„ 1 0 0 „	
7	Do. - -	1 quart, 1 pint measure, 3 pint pots defective.	„ 1 10 0 „	Negligence.
8	Beershop keeper -	1 quart, 1 pint, and 1 half-pint measures; 2 pint pots, very defective.	„ 1 12 6 „	Defence, just entered the trade, and found the pots there.
9	Licensed victualler -	1 quart and 1 pint measures, leaky.	„ 0 15 0 „	Ignorance pleaded.
10	Do. - -	1 quart measure - -	„ 0 10 0 „	Second offence. Refused to give up the measure, and thus was summoned, as the inspectors do not summon for one measure.
11	Do. - -	2 quart pots - - -	„ 0 10 0 „	Negligence.
12	Do. - -	1 half-pint, 1 gill measures; 1 quart and 2 pint pots.	„ 0 15 0 „	Measures not used; defendant agreeing to give them up, was fined only for the two pots defective.
13	Do. - -	3 quart and 6 pint pots -	„ 2 5 0 „	Pleaded that his customers knocked them about.
14	Oilman - -	1 weight heavy and 2 light -	„ 0 5 0 „	Alleged fault of scalemaker, and the weights not used.
15	Marine store dealer -	3 weights light - -	„ 0 5 0 „	
16	Do. - -	2 weights heavy and 2 light -	„ 0 15 0 „	Pleaded ignorance, and first offence; justices thought it a bad case.
17	Tripe dealer - -	4 weights very light - -	„ 0 10 0 „	Ignorance pleaded.
18	Marine store dealer -	3 weights rather light - -	„ 0 5 0 „	Illness pleaded.
19	Grocer - - -	6 weights very light - -	„ 1 0 0 „	Ignorance pleaded, and weights not used; magistrates thought it a bad case and inflicted the highest fine.
20	Chandler - -	4 weights heavy and 4 light -	„ 0 10 0 „	Ignorance pleaded, and heavy weights not used.
21	Oilman - -	5 weights light and dirty -	„ 0 10 0 „	Alleged fault of scalemaker employed.
22	Chandler - -	8 weights light - -	„ 0 5 0 „	Pleaded only in possession of the shop the day before the seizure.
23	Do. - -	5 weights light - -	„ 0 10 0 „	
24	Grocer - -	15 weights light - -	„ 1 0 0 „	Weights being adjusted by scalemaker when seized. Defendant admitted they had not being adjusted for two years.
25	Marine store dealer -	5 weights heavy, very bad -	„ 0 15 0 „	Pleaded adjustment a fortnight before seizure.
26	Baker - - -	3 weights heavy - -	Conviction not pressed -	Defendant bankrupt since seizure.
27	Marine store dealer -	2 weights heavy and 1 light -	Fined 0 10 0 and costs	
28	Oilman - -	4 weights heavy - -	Dismissed on paying costs and giving up weights.	Ignorance pleaded, and adjustment by scalemaker. Defendant very dissatisfied with the decision.
29	Chandler - -	4 weights heavy; much against himself.	Charge not pressed on giving up the weights.	Alleged fault of scalemaker.
30	Grocer - - -	3 weights heavy - -	Do. do.	Do. do.
31	Marine store dealer -	3 weights heavy, for buying -	Fined 0 5 0 and costs.	
32	Coal dealer - -	Peculiar weight of 2½ ozs. made to resemble ½ lb.	Charge not pressed on giving up the weight.	Pleaded not used.
33	Chandler - -	4 weights light - - -	Fined 0 10 0 and costs.	
34	Greengrocer - -	5 weights heavy; very much against himself.	Charge not pressed on giving up the weights.	Alleged adjustment by a scalemaker a fortnight before seizure.
35	Do. - -	1 weight heavy and 5 light -	Fined 0 10 0 and costs.	
36	Chandler - -	1 pair of scales ¼ oz. out -	„ 0 5 0 „	Ignorance pleaded.
37	Dairyman - -	5 weights heavy - -	Dismissed; weights forfeited.	Weights adjusted by scalemaker.
38	Grocer - - -	4 weights heavy - -	Charge not pressed -	Negligence of scalemaker.
39	Marine store dealer -	2 weights heavy; 1 pair of scales ⅜ oz. out.	Fined 0 10 0 and costs	Fault of scalemaker.
40	Cheesemonger - -	3 weights light - -	„ 0 10 0 „	Scalemaker paid to adjust them.
41	Greengrocer - -	8 weights light - -	„ 0 10 0 „	
42	Do. - -	10 weights heavy - -	Charge not pressed; weights forfeited.	Adjusted three or four days before by scalemaker.
43	Do. - -	3 weights heavy - -	Do. do.	Scalemaker paid to adjust them.
44	Do. - -	3 weights light - -	Fined 0 10 0 and costs	Do. do.
45	Butcher - -	1 pair of scales ½ oz. against purchaser.	„ 0 15 0 „	Defect denied and ignorance pleaded. Magistrates thought it a bad case.
46	Grocer - - -	3 weights heavy - -	Charge not pressed -	Scalemaker paid to adjust them.
47	Chandler - -	3 weights light - -	Fined 0 10 0 and costs	Do. do.
48	Cornchandler - -	4 weights light - -	„ 0 10 0 „	Ignorance pleaded.
49	Butcher - -	2 weights light - -	„ 0 5 0 „	Scalemaker employed for weights.
50	Greengrocer - -	2 weights heavy, 8 light -	„ 1 0 0 „	Pleaded weights not used; a 1 lb., plugged with cork instead of lead, and weighing 14 ozs. The Court thought this the first case of intent to fraud and inflicted highest fine.
51	Chandler - -	5 weights light - -	„ 0 10 0 „	
52	Milkman - -	1 weight light; 1 pair of scales ¼ oz. against purchaser.	„ 0 5 0 „	Pleaded ignorance, and weight and scales never used.
53	Fishmonger - -	1 weight heavy, 3 light -	„ 0 10 0 „	Court thought it a bad case.
54	Greengrocer - -	2 weights heavy - -	Charge not pressed	The scalemaker alleged the weights to be correct, and produced the weight by which they were adjusted. This weight was also found to be defective.
55	Marine store dealer -	1 weight light; 1 pair of scales ½ oz. out	Fined 0 10 0 and costs	For the scales; charge for weight not pressed.
56	Greengrocer - -	4 weights heavy - -	Charge not pressed -	Fault of scalemaker.

Appendix VI.—*continued.*

Order of Hearing.	Tradesman.	Defective Weights, Measures, &c.	Decision.	Remarks in Report.
			£ s. d.	
57	Marine store dealer -	5 weights light, against the dealer.	Charge not pressed.	——
58	Cheesemonger - -	6 weights heavy, against himself.	Do. - -	Adjusted by scalemaker the day before seizure.
59	Fishmonger - -	3 weights heavy -	Charge withdrawn.	——
60	Baker - - -	1 pair of scales ½ oz. out -	Fined 0 10 0 and costs	——
61	Grocer - - -	4 weights very heavy, against himself.	Charge not pressed -	Scalemaker employed to adjust them.
62	Fishmonger - -	1 weight heavy, 2 light -	Fined 0 5 0 and costs	——
63	Greengrocer - -	1 weight heavy, 2 light -	„ 0 5 0 „	——
64	Oilman - - -	3 weights light - -	„ 0 5 0 „	Paid scalemaker 1*l.* 10*s.* per annum to adjust them; adjusted a few days before seizure.
65	Cheesemonger - -	3 weights heavy - -	Charge not pressed -	Fault of scalemaker.
66	Fishmonger - -	8 weights heavy, against himself.	Do. - -	Ignorance pleaded, and shop only just taken.
67	Cheesemonger - -	5 weights heavy - -	Do. - -	Scalemaker as witness pleaded salt and cheese getting on the weights.
68	Licensed victualler -	4 pint pots defective - -	Fined 1 0 0 and costs.	——
69	Beershop keeper -	3 pint pots defective - -	„ 0 15 0 „	Carelessness.
70	Costermonger - -	3 weights light, 2 very bad; seized from a barrow.	„ 0 10 0 „	Pleaded weights falling from barrow and getting chipped.
71	Greengrocer - -	3 weights light - -	„ 0 10 0 „	——
		Total fines - -	29 7 6	

The statement concludes thus:—

"Last year, it will be remembered, the inspectors were advised by Mr. Layton (the clerk to the magistrates) that they could not withdraw the summonses in cases where there was no intention to defraud, but were compelled by the Act to prosecute wherever weights were defective. As will be observed, in many of the above cases the summonses were withdrawn by the inspectors, Mr. Layton now holding that the Act allows the inspectors to withdraw a summons if the person summoned agrees to give up the weights. We may add that under any circumstances the weights are forfeited.

11. Testing and stamping of liquid measures.

11. *Legality of verifying and stamping Liquid Measures, being multiples or parts of the Gallon, &c., other than those represented by local Standards.*

From Inspector of Weights and Measures, Blackburn.

Borough Police Office, Town Hall, Blackburn,
Sir, March 10, 1865.

I venture to intrude myself on your indulgence, knowing that I have no right to expect from you the information I am about to ask; but should the matter be within your immediate knowledge, I would esteem it a favour to be assisted as herein set forth.

I was duly appointed Inspector of Weights and Measures for the borough of Blackburn, and by indenture under your signature dated 26th September 1864.

In the Acts bearing upon such duties I find in the schedule of charges for stamping liquid measures, from five gallons down to one half-gill, in the clause the words "multiple" or "aliquot parts of a gallon" are given; and an example set forth referring to the aliquot parts, viz., $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, and charges stated in schedule for each 5-gallon, 1*s.*; 4-gallon, 9*d.*; 3-gallon, 6*d.*; 2-gallon, 4*d.*; 1-gallon, 2*d.*; ½-gallon, 1*d.* There is no schedule for greater quantities than 5 gallons. The multiple seems to authorize any size being a multiple of a gallon. I have had measures 8 gallons and 10 gallons presented having no specified charge in the schedule.

I am at a loss to know, in the first place, whether I ought to examine, compare, and stamp such measures; if so, what charges ought to be made?

Again, as to adjusting, the authorities here have authorized a scale of charges for liquid measures as follows, viz., for each 5, 4, and 3 gallons, 3*d.*; for 2 and 1 gallon, 2*d.*; under, 1*d.* Should it be lawful to stamp and adjust those 8 and 10 gallon measures, I presume the adjusting should also be charged; if so, what rate?

I find in the Acts an exception in weights, that no weight greater than 56 lbs. is to be used, and stating as a reason that no greater imperial weight than 56 lbs. is deposited at the Exchequer Office; but there is no such exception as to the liquid measure.

I am, therefore, by the facts above stated, in difficulties as to what course to adopt.

I am exceedingly reluctant to trouble you; but having been unable to obtain such assistance, I am induced to ask you to inform me as to the general practice on the points stated, so far as you may already be informed.

I have, &c.
Joseph Potts,
Chief Constable and Inspector of
J. Bowen, Esq. Weights and Measures.

Superintendent of Weights and Measures, in reply.

Sir, Exchequer, March 22, 1865.

In reply to your letter of the 10th instant, I regret that I am unable to answer your inquiries relative to the comparison and adjustment of measures of 8 and 10 gallons, as this Department has no acquaintance officially with the general practice of Inspectors in executing the laws relating to weights and measures. The Inspectors are appointed by and are amenable to the justices or other legal authorities, who have the right of appointing them, and they are liable to a penalty of 5*l.* for neglect of duty or for misconduct, under the 29th section of the Act 5 & 6 Will. 4. c. 63.

I beg therefore to suggest that by placing yourself in communication with the Inspectors at Manchester, Liverpool, London, or elsewhere, you might obtain the information you require. As the Inspectors do not furnish this office with any returns of their general practice, any remarks I might make upon this matter might only mislead instead of assisting you.

I am, &c.
John Bowen.

J. Potts, Esq., Chief Constable, &c.

Inspector of Weights, &c., Blackburn, in continuation.

Borough Police Force, Town Hall, Blackburn,
Sir, March 27, 1865.

I am in receipt of yours of the 22nd instant, and beg most sincerely to thank you for your kind and courteous attention to my queries of the 10th instant; and I would add that, consequent thereon, and to your reference, I have written to the Inspector of Weights and Measures at Manchester, and he has replied, stating, "I do not compare, adjust, or stamp any weights or measures which do not correspond with the copies of the standards in my possession." Sending the reply (as above given) from Manchester, I refrained from writing you, which delay so occasioned, I hope you will be pleased to accept as my apology.

I am, &c.
Joseph Potts,
Chief Constable, &c.

J. Bowen, Esq., Exchequer Office.

1. *Questions addressed to Inspectors, and replies.*

12. *Allowance for errors in commercial weights; use of troy weights; testing of subdivisions of foot, &c.—Questions from the Standards Department sent to certain Inspectors of Weights and Measures, October 3, 1866.*

1. Should any error or remedy be allowed in public weights, so as to prevent conviction for trivial offences, and allow a little draught of the scale?

Appendix VI.—*continued.*

2. What amount of remedy or error should be allowed upon the 56 lbs., 1 lb., and 1 oz. weights respectively?

3. Will your balance detect an error of 20 grains in the 56 lb. weight, or 1 grain in the 1 lb. weight?

4. Are troy or bullion weights much used in your district?

5. Are you ever asked to try measures of a foot or an inch?

Replies from Inspectors of Weights and Measures.

1. *From Inspector at Liverpool.*

Liverpool, October 5, 1866.

Sir,

I received your note of the 3rd instant, yesterday afternoon, and in reply to your queries, "1st, should any "error or remedy be allowed in public weights, so as to "prevent convictions for trivial offences, and allow a little "draught of the scale," I beg to state (that, in my opinion), all weights should be kept as near as possible in accordance with the Imperial Standards, and that scales of every description used in buying or selling goods, should be kept accurately balanced, and that it would be a great evil to legalize or sanction any deficiency or incorrectness in either, but the Inspectors of this town have always made allowance for the slight deficiency of weights by usual wear and corrosion of the metal, brass, or iron, so that they do not, as a rule, seize a 56 lb. for being 1 oz. light, or 1 oz. for being 4 or 6 grains light, except the ounce has been wilfully filed down as occasionally detected.

The practice of the out-door Inspectors at this office has been, for many years, when they find weights or measures a little deficient from common wear, to order the owners thereof to have them adjusted immediately, and not to summons traders unnecessarily before the magistrates for a trivial unavoidable offence.

Our testing beams in the workshops, as well as those used by the out-door Inspectors, are kept in as great a state of accuracy as possible, so that for a few months after being received from Messrs. De Grave and Co., after being adjusted, the larger beams will turn fully with your 2 to 4 grains and 56 lbs. in each scale; consequently, would then show an error in 56 lbs. to that amount, but such great accuracy does not long continue, as from 2 to 4 tons are frequently weighed by one of those 56 lb. beams in a day. These remarks apply in a proportionate degree to all our smaller beams.

Troy weights are in general use here and frequently brought to this office to be adjusted and stamped, seldom decimals are brought, but a few bullion dealers have them. The yard being the only legal standard of length, I do not recollect having been asked to stamp a measure of an inch or foot; sometimes persons ask to have a 2-foot rule stamped.

From what you have said, Sir, I presume there is a probability of some further legislation upon weights and measures, and will therefore take the liberty of pointing out to you what we have always considered the great deficiency of all Weights and Measures Acts, viz., not giving power to Inspectors to check fraud in any way, or convict notoriously fraudulent dealers, except their weights, scales, or measures are incorrect (and such persons, we know, are often very particular in having them correct), whilst they will defraud the purchaser with impunity in presence of the Inspector, by weighing 1 lb. of sugar, fruit, &c., with only 14 or 15 ounces in the scale in place of 1 lb. This is a general mode of fraud amongst provision dealers and grocers whom we cannot reach.

I am, &c.

James Johnstone,

H. J. Chaney, Esq. Chief Inspector.

2. *From Inspector at Sunderland.*

Weights and Measures Offices,

Dear Sir, Sunderland, October 6, 1866.

I have received your note of the 3rd instant, and in reply to your first question, whether we should depart from the theory that all weights and scales should be absolutely just, my answer would be no—not in theory—not in *law*, but in practice we cannot help it. To let down the standard required, ever so little, would be in effect to destroy all standards whatever. The magistrates do not convict for trivial offences.

During the last 10 years I have obtained upwards of a thousand convictions, but my practice is not to seize a 56 lbs. weight under a 1 oz. light; a 28 lbs. under ½ an oz.; a 14 lbs. under ¼ oz.; or a 1 lb. under a ¼ drachm; except under very special circumstances. This answers your second question.

With respect to balances, I am accustomed to keep those I use very fine so that they will cast with less than you mention, I having been a scale beam maker.

Although I have never been asked to test measures of a foot or an inch, yet I have often been asked to test half-yards and quarters, which of course I cannot do.

Troy weights are only used in my district by silversmiths and pawnbrokers, but I have reason to believe that usually they are neither just or stamped.

I should be most happy to give my reasons for what I state or any explanations if required.

I am, &c.

H. J. Chaney, Esq. R. A. Berkley.

3. *From Inspector at Westminster.*

141, Carlton Road, Kentish Town,

Dear Sir, October 13, 1866.

I now give you the answers required.

1. Merely the turn of the scale.

2. With regard to the 56 lbs., 20 grains would be allowed; respecting all smaller weights we endeavour to adjust them as near standard as possible.

3. The troy weight from 1 lb. to 1 grain, are frequently used.

4. We are never called upon to verify measures from a foot or an inch.

5. The balance used in my office will detect any error from 56 lbs. to 1 grain, a ½ grain is not used.

I am, &c.

To H. J. Chaney, Esq. Thomas Cooke.

4. *From Inspector at Guildhall, City of London.*

Weights and Measures Office, Guildhall,

Sir, London, October 18, 1866.

As regards your questions 1 and 2. The Office of Inspectors for the City of London being a strictly salaried one, and no portion of the penalty paid to them, the tradesmen, &c. are never summoned for trivial offences; therefore, no allowance would have to be made.

Question No. 3. Yes, our beams and scales would detect the least error (*i.e.*, ½ grain on the 1 lb., or 5 grains on the 56 lbs.), we being very particular in trying the same before starting, and should there be any variation they are at once sent to the scale maker for adjustment.

Question 4. No Inspector has been furnished with troy weights of a greater capacity than 1 lb.

Question 5. No more than that the Inspector could not do so, his Exchequer measure being one yard only, without any divisions as to feet or inches.

I am, &c.

John F. Johnson,

H. J. Chaney, Esq. Inspector.

5. *From Inspector at Hounslow, County of Middlesex.*

Handel Villas, Hounslow,

Dear Sir, November 1, 1866.

In answer to your letter respecting weights and measures;—Question No. 1. Should any draught be allowed in scales?—I think it would not be advisable to allow any draught; if any draught was allowed by law the seller would take advantage of it and the public would never get their proper weight. I have been Inspector of Weights and Measures for upwards of 14 years, and the manner in which I discharge my duty respecting the same is not to take proceedings for very trivial offences in the first instance, but to caution the parties; and after that caution, if the offence is repeated, I then take proceedings against the parties and the magistrates generally convict in a small fine for the first offence.

Question 2. Respecting deficient weight, my answer is the same as refers to balances; when I find a small deficiency I caution the parties to have them adjusted.

Question 3. Will your balance detect errors of 20 grains in the 56 lb. weight?—My answer is no, the smallest avoirdupois weight known by law is ½ a dram, therefore grain weights cannot be used, so far as avoirdupois weights are concerned.

Question 4. Are troy or bullion weights much used in my district?—The said weights are not used in my district, not having any standard from the Exchequer.

Question 5. Are you ever asked to try measures of a foot or an inch?—No.

I am, &c.

James Gregg,

Inspector of Weights, &c.,

H. J. Chaney, Esq. for District No. 4, Middlesex.

Appendix VI.—*continued.*

6. *Memorandum in reply to Mr. Chaney's questions, by Mr. James Daws, Inspector for Newington Division, County of Surrey.*

1. By desire of Surrey magistrates, always allow the turn of the scale, and is decidedly of opinion that a remedy or small amount of error should be allowed. Says, most good Inspectors do now allow a turn of the scale.

2. Has few troy weights in his district, and what few troy weights are used by the pawnbrokers they are taken to City of London to be stamped, as Inspector for Newington has no troy standards. Told him there was a penalty for such proceedings.

3. Inspectors balance will show errors of 6 grains on the 56 lbs., and 1 grain on the 1 lb.

4. Is never asked to stamp measures of a foot or an inch.

5. His district includes eight large parishes from Southwark to Wandsworth, Croydon, &c.

6. Will be ready to give any information required.

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7. *From Inspector of Clerkenwell Division, County of Middlesex.*

Sessions House, Clerkenwell,
SIR, January 10, 1867.

I BEG to answer your questions, according to my view, as follows:—

1. No error should be recognized. Weight should be stamped equal to the standard; and if, upon subsequent inspection, they are found light or otherwise incorrect, the Inspector ought to use his discretion or judgment as to whether the person ought to be summoned for having them in his or her possession. When a person is summoned for such offence, it is in the province of the justices to decide whether the case be trifling or not.

2. Scales of all kinds should poise, and no draught recognized, because what would be serious in one case would be trifling in others; *i.e.*, colour is sold at 2*s.* and 3*s.* per lb., and coals at 1*s.* 4*d.* per cwt.

3. Not to my knowledge.

4. No.

I am, &c.
D. FAULKNER,
Inspector, District No. 2,
H. J. Chaney, Esq. County of Middlesex.

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13. Stated inaccuracies in stamped oil measures.

13. *Stated inaccuracies in Five Gallon Measures for Oil, stamped by Inspector of Weights and Measures, and inclosing Report from Oil Inspector.*

From Crown Agents to the Colonies.

Offices of the Crown Agents for the Colonies,
SIR, Spring Gardens, London, Dec. 6, 1866.

I BEG to call your attention to the alleged inaccuracy of certain 5-gallon measures now in the possession of Messrs. Pinchin and Johnson, oil refiners, New Road, St. George's-in-the-East.

From a report made by the Inspector of Oil to the Crown Agents for the Colonies, of which a copy is enclosed, it would appear that three of these measures, bearing the Government stamp, two of which had just been brought new from the Stamp Office, all differed from each other in their holding capacities, varying from 8 ounces too small to 6 ounces too large.

This discovery was made in consequence of a complaint having reached the Crown Agents from the Government of Mauritius of a considerable deficiency having been discovered in a consignment of oil which had been furnished by Messrs. Pinchin and Johnson.

A belief is expressed by Mr. Gordon, the Inspector of Oil, who is a most careful and accurate man, that Messrs. Pinchin and Johnson were quite ignorant of these discrepancies; and the high standing and well-known respectability of the firm can leave little room for doubt as to the truth of his conclusions in that respect.

The question is one, however, of far higher importance to the public if, as stated, these inaccuracies are chargeable to the Department whose stamp on a new measure is usually admitted as unquestionable evidence of its correctness; and the Crown Agents trust that immediate steps may be taken to inquire into the matter, and that they may be informed of the result, in order to determine how far they may be justified in calling upon Messrs. Pinchin and Johnson to make good to the Mauritius Government the reported deficiencies.

I have, &c.
P. G. JULYAN.
Sir W. Dunbar, Bart., Comptroller-General,
Exchequer Office.

Report from Oil Inspector enclosed.

8, New Broad Street, London,
GENTLEMEN, November 23, 1866.

I BEG to submit the following report in reference to the deficiencies of oil (per "Polly" and "Julia"), as stated in the letter of the Colonial Secretary for the Mauritius A/2217, as likewise its inclosure (Harbour Master's letter B/41, dated 12th October 1866).

1stly. The tins are the strongest that I have known to be shipped; and from many years' experience I find that good tins basketed are by far the safest packages for oil in transitu. The 9 lb. tin referred to in the Harbour Master's letter was a light iron *drum*, and was not a tin same as those now sent. None of the oil refiners have ever seen a 5-gallon tin weigh 9 lbs.

2ndly, I am under the impression that no leakage had taken place from the following circumstances:—

(1.) On the 21st instant I called on Messrs. Pinchin and Johnson, who supplied the oil, and while there two new 5-gallon measures were brought in from the Stamp Office, and also the one in which I had seen the oil measured; all bearing the Government stamp.

I satisfied myself when seeing the oil measured, that the 5-gallon measure was properly stamped; I did not, therefore, think of disputing its accuracy.

(2.) On testing these three measures they were all found to be different in size, and in proving them with water the one in which the oil referred to was measured was 8 oz. of water too small; of the new measures, one was 5 oz. too small, the other was 6 oz. too large.

(3.) Seeing that the three measures here differed to the extent named, is it not likely that the measure in use at the Mauritius may be slightly wrong also? They all bear the Government stamp, and it does not to me appear in the least degree improbable that it may be 4 oz. too large as the one here was 8 oz. too small. This would account for 42 gallons short, whereas the actual deficiency is by 38 gallons. Moreover, unless the tins were allowed a very long time to drip, another 20 to 28 gallons would adhere to the sides of them, thus accounting for a further *apparent* deficiency. The weight of water at 60° heat is 50 lbs. per 5 gallons, and oil 45 lbs. for the same quantity.

(4.) According to the above computation, the quantity short shipped by the contractors amounts to 28 gallons; this arose through the discrepancy in their measure, of which, in my opinion, they were not cognizant; and Messrs. Pinchin and Johnson's being a highly respectable house, I have no doubt but that they will supply you with oil to the above extent, should you consider it necessary to call on them to do so.

I am, &c.
JOHN GORDON,
To the Crown Agents for the Colonies, Inspector.
Spring Gardens.

From Warden of the Standards, in reply.

SIR, 6, Old Palace Yard, Dec. 10, 1866.

THE Comptroller-General of the Exchequer, all of whose duties relating to the standard weights and measures have been transferred to me under the provisions of the Standards Act of last session, 29 & 30 Vict. c. 82., has handed over to me your letter of the 6th instant.

I have to inform you that it is no part of the functions now assigned to this Department to interfere with the matter to which it relates. But I may refer you to the provisions of the Act 5 & 6 Will. 4. c. 63., under which sections 21 and 25 it is the duty of the Inspectors of Weights and Measures duly to stamp weights and measures of any person residing within their district, after examining and comparing them with the copies of the imperial standards furnished to them for this purpose, and if found to correspond with the said copies. Under section 23 every such Inspector is bound to enter into recognizances in the sum of 200*l.* for the due and punctual performance of the duties of his office, to be sued for in any Court of Record. And under section 29 any such Inspector who shall stamp any weight or measure without duly verifying the same by comparison with a copy of the imperial standard, or shall be guilty of a breach of any duty imposed upon him by this Act, or otherwise misconduct himself in the execution of his office, shall, upon conviction, forfeit a sum not exceeding 5*l.* for every such offence.

Under section 17 of the Act the local magistrates are authorized to appoint such Inspectors, and to suspend or dismiss them, as occasion may require.

In the case now brought under my notice, and in all similar cases, it appears that the law has provided ample relief to any parties aggrieved by any Inspector of Weights

Appendix VI.—*continued.*

and Measures who may be proved to have stamped inaccurate weights and measures, and any such misconduct should be duly reported to the local magistrates through the Clerk of the Peace.

I have only further to observe that it does not appear that any copies of the imperial standards have been verified in this Department for the use of the Government of Mauritius.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

The Crown Agent for the Colonies.

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14. Complaints of convictions, &c. at Peterborough.

14. *Complaint of inaccurate Local Standards; convictions for small and inevitable deviations of Weights from Standards; system of awarding large portions of penalties and costs to Inspectors, and inefficiency of Laws to restrain wilful and fraudulent Offenders.*

From Firm of Wholesale and Retail Butchers at Peterborough.

SIR, Peterborough, December 17, 1866.

WE regret being obliged to call your attention to matters involving such minute details. The necessity, however, of maintaining strict and undeviating accuracy in the standards is of the utmost importance to tradesmen, and arises out of the very stringent and rigid manner in which Inspectors of Weights and Measures perform their duties. The Act itself, although evidently so lax as regards the standards, admits of no deviation whatever in the weights and measures used for ordinary purposes, however trivial such deviation may be, or from whatever cause it may have arisen. In every instance the tradesman is held responsible. It may be necessary here to inform you that we carry on a very extensive business in this locality as wholesale and retail butchers, and that in December last we were summoned before the Bench of Magistrates by the Inspector of the district for having in our possession two pair of scales each 5 drachms out of the balance, and six light weights as follows:—

1 7 lb.	-	-	1 drachm.
1 4 lb.	-	-	2 „
1 2 lb.	-	-	2 „
1 2 lb.	-	-	4 „
1 ½ lb.	-	-	½ „
1 ½ lb.	-	nearly	½ „

The point to which we would beg the favour of your special attention is the fact that in our trade, and we believe in several others, these small deviations are inevitable and entirely beyond the reach of human control. In fact, during the investigation of our case it transpired that the Inspector had adjusted and stamped some of these very weights wrong, which being tested immediately after were found to be incorrect to the extent of half a drachm and a drachm, some being too heavy and others too light, and that his own standards were *illegal*.

The prejudice created in the public mind against tradesmen who are once convicted of these supposed offences is most damaging to their reputation and future prospects, and is such that time itself will not efface, and from what we have experienced in our case, and seen in others, we have no doubt whatever but that to the inaccurate state of the standards the present extraordinary state of the law, and especially to the system of awarding a large portion of the penalties and costs to the Inspector and others who are engaged in enforcing the law, may be attributed many of the convictions from which tradesmen suffer so severely, whilst, on the other hand, the law seems especially inefficient in restraining the fraudulent practices of persons wilfully offending.

In conclusion, we beg to call your serious attention to the great hardship of indiscriminately punishing the innocent with the guilty, and that we trust as well for ourselves as our neighbours that some means will be specially adopted for amending a law which is manifestly alike impracticable and unjust.

Hoping to receive the information alluded to, we have, &c.

SEARJEANT AND REDHEAD.

To the Right Hon.
Sir Stafford Northcote, M.P.,
President of the Board of Trade.

Warden of the Standards, in reply.

6, Old Palace Yard,
GENTLEMEN, December, 31, 1866.

YOUR letter of the 17th instant, addressed to the President of the Board of Trade, has been referred by him to me.

The object of the Standards Act of last session was not only to transfer the Weights and Measures Department to the Board of Trade, but also to carry out the recommendation of the Standard Commission and Committee in their several Reports for the improvement of the Standard Department by assigning to it larger and more extended duties by appointing a chief officer who should be responsible for the execution of those duties, and by a legal provision, which did not previously exist, for the periodical adjustment and verification of the official standards.

In order most effectually to carry out these objects, it is proposed to revive the Standard Commission, in order that the official standards may be adjusted under high scientific superintendence, and that due consideration may be given to the mode in which the Standard Department may be made most efficient for the public service.

Amongst the new duties proposed to be assigned to the Chief of this Department is that of securing as far as possible not only that the official standards, but also all the local standards throughout the country are maintained in due efficiency, and that he should collect information generally as to weights and measures, and report it to the Government and annually to Parliament, to be available in future legislation upon the subject.

I beg to assure you, therefore, that your statements will receive due attention with respect to any adjustment that may be required to be made in the official standards, as well as allowance for error in the local standards, due public notice will be given when they shall have been determined on. But it is probable that both will be so small as to be inappreciable in their effect upon the weights and measures in common use.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

Messrs. Searjeant and Redhead.

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15. Application for 3½ lb. standard weight;

15. *Application for 3½ lb. standard weight for selling half gallons of flour.*

From Clerk of the Peace, Kent.

SIR, Maidstone, May 8, 1867.

I ENCLOSE an order of the general sessions for the county of Kent, suggesting to the Board of Trade the convenience that would arise from having a 3½ lb. weight for selling half gallons of flour, and applying to the Board to provide such a weight as an aliquot part of a cwt.

If convenient I shall be glad to be favoured with a reply before the 28th instant, the day fixed for the next adjourned general sessions.

I am, &c.
F. RUSSELL,
Clerk of the Peace for Kent.

H. W. Chisholm, Esq.,
Warden of the Standards,
&c. &c. &c.

KENT. At the Annual General Session of the Peace holden (by adjournment) at Maidstone, in and for the County of Kent, on the sixteenth day of April in the year of our Lord one thousand eight hundred and sixty-seven, before three and more justices of our Lady the Queen assigned to preserve the peace of our said Lady the Queen in the said county, and also to hear and determine divers felonies, trespasses, and other misdemeanors done and committed therein.

It is ordered that, inasmuch as it would be a convenience in selling half gallons of flour to have 3½ lb. weights, application be made to the Board of Trade to provide 3½ lb. weights as an aliquot part of a hundredweight.

By the Court.
F. RUSSELL,
Clerk of the Peace for Kent.

[Reply sent, that the subject would be laid before the Standard Commission, for their consideration.]

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16. and for 1¾ lb., as flour weights.

16. *Application for 3½ lb. and 1¾ lb. standard weights as flour weights.*

From Inspector of Weights and Measures, Ashford.

MY LORD, Ashford, April 18, 1867.

I HAVE to apologize for speaking hurriedly about the flour weights; the present 7 lb. weight represents the gallon, of which of course we have standard copies.

It is the half gallon and quart that we have no standards for, but both of which are much required, viz., 3½ lbs. and

Appendix VI.—*continued.*

1¾ lbs. I have tested the former by using a 2 lb., 1 lb., and ½ lb., and for the other, 1 lb., ½ lb., and ¼ lb. If allowed they ought not to assume the shape of the brass or iron 7 lb., 4 lb., or 2 lb., but nearly all I have seen are thus : viz., octagon-shaped and flat weights. This is the shape all my new flour weights are made to. I have always considered them legal, as they are *aliquot* parts of a stone.

I believe that more flour is sold in half gallon parcels and quarts than in larger quantities, as bakers' shelves are generally full of them in paper bags.

I am, &c.

The Right Hon. the Earl of Romney. THOS. THURSTONE.

[This letter was sent by Lord Romney to the President of the Board of Trade, and referred by his Grace to the Standards Department, to be laid before the Standards Commission.]

17. Legality of weights on steelyards.

17. *Question of legality of use of weights on Steelyards.*

From Inspector of Weights and Measures, Perth.

Weights and Measures Office, County Buildings,
Perth, May 22, 1867.

SIR,

IN weighing on numbers of patent and other steelyards in use in this and other counties, weights *not* of the imperial standard are used. These weights, which are merely blocks of metal, and do not represent any aliquot part of a cwt., are presumed to show hundredweights, quarters, &c. when any article is weighed on the steelyard.

Not being imperial they cannot be tested and stamped, and people often complain that this is unsatisfactory.

I humbly beg to ask, is the use of such weights illegal?

I am, &c.

W. ANDREWS,
Inspector of Weights and Measures
for the County of Perth.

H. W. Chisholm, Esq., &c. &c.

Warden of the Standards, in reply.

7, Old Palace Yard, May 23, 1867.

SIR,

As Her Majesty has just appointed a Royal Commission to inquire into the condition of the official standards, and for other purposes connected with them, I will take care that your letter of yesterday's date, stating the use of unstamped weights on steelyards, is brought to their notice.

In the meantime, although I am not authorized to pronounce any decisive legal opinion upon the subject, I may state to you that sect. 28 of the Act 5 & 6 Will. 4. c. 63. imposes a penalty on any person in whose possession any defective *steelyard or other weighing machine* shall be found. On the 27th November 1864 a case was decided in the Court of Queen's Bench, on an appeal by the Great Western Railway Company against a conviction for an unjust weighing machine, when the conviction was confirmed.

Thus although weights belonging to a steelyard or weighing machine, which cannot be legally used as weights apart from such steelyard or weighing machine, may not be stamped or tested by the Inspector, yet full power is given to the Inspector to examine any steelyard or weighing machine used for the sale or transport of goods, "and to "compare and try the same with the copies of the imperial "standard weights, &c.," and if upon examination it is found incorrect or otherwise unjust the person in whose possession it is found is liable to a penalty not exceeding 5*l.*

It would appear therefore that the weights in question *as part of the steelyard or weighing machine* may be legally used, but are subject to examination by the Inspector.

I am, &c.

H. W. CHISHOLM.

The Inspector of Weights and Measures,
Perth.

18. Complaints of inspection at Headcorn, and suggested alterations.

18. *Objections to working of present System of Inspection of Weights and Measures, and Statement of proposed Alterations.*

From the Mutual Trade Protection Society, Headcorn.

To the Honourable Chairman and Members of Her Majesty's Commission of Inquiry respecting the existing law relating to the Inspection of Weights and Measures.

Office, Headcorn, Kent,
July 6, 1867.

GENTLEMEN,

HAVING laid the kind answer of Mr. Gathorne Hardy, Her Majesty's Secretary of State for the Home Department, before the president and committee of the above society, I beg to state that they have instructed me, in accordance with the right honourable gentleman's recommendation, to direct to you the following statement respecting the grievances under which the trade of this district consider themselves to suffer.

1st. That they strongly object to the Inspector of Weights and Measures receiving one-half of the fines inflicted, as by so doing it degrades the person filling the office to the level of a common informer, and the public suffer through frivolous and vexatious informations.

2nd. That no sufficient discrimination is shown by the magistrates in adjudication between persons guilty of fraud and those who may be innocent of *intent*, but who through wear or atmospheric influences may have slightly incorrect balances or weights, and that by reason of such fines inflicted on respectable persons (who strongly feel the injustice done them) the decisions of the bench of magistrates fail in their object of punishing guilty persons, as the public generally hold that the present mode of inspection is an imposition, and that therefore by reason of such public impression justice fails in the duties which it should perform.

3rd. That the present law tolerates errors in the Inspectors' standards, many of which have not been tried against the Exchequer weights or properly adjusted for years, whilst at the same time the *slightest* errors in those of tradesmen are visited by fines more or less in amount.

4th. That throughout this district the generality of tradesmen give *more than weight*, as the public always demand by universal custom that the scale of the balance containing the goods weighed shall descend below that containing the weight, yet for such turn of the scale no allowance is made by the Inspector.

5th. That in this district various respectable persons have at different times been fined illegally for weights and scales in such places as close warehouses, manufactories, slaughter-houses, forges, and outhouses where goods are *not exposed* for sale, and that such decisions are contrary to the provisions of the present Act of Parliament, and also that frivolous and vexatious informations of the most trifling character *abound*, to the detriment of justice generally.

The committee and officers of the society therefore pray that you, gentlemen, will with strict regard to justice and the well-being of the public peruse the following views which they take of the question at issue:—

1st. That the Inspector be paid by stated salary of sufficient amount for his services instead of receiving a moiety of the fines.

2nd. That the justice's clerk, instead of receiving the costs for summonses in cases of illegal weights or measures, may be paid by stated salary for his services.

3rd. That persons illegally or unjustly summoned shall on dismission of the summons by the bench receive compensation for loss of time and travelling expenses.

4th. That persons proved to be guilty of fraudulent intent by having *false* weights or measures be more severely punished and their fines increased, but that the Inspector shall not have power to summon *unless* such fraudulent intent be proved; and which is in perfect accordance with the tenor of *all other* portions of our jurisprudence.

5th. That the Inspector shall on finding any weight or scale or measure incorrect, if there be no evidence of fraud, warn the person to whom such scales, &c. belong before summoning him, but if he again find the same scales, &c. unadjusted, such person shall have information laid against him and be dealt with as if for fraud.

Your petitioners will on requisition attend before the honourable Commission and give answer to any question on the foregoing remarks, or bring witnesses, &c. that may be wanted, and they pray that you, gentlemen, will kindly give the matter in question such consideration as will materially lighten the burthen of the present system, and

Appendix VI.—*continued.*

tend towards framing an Act of Parliament fitted to the exigencies of the case.

Signed on behalf of the Committee.

THOS. W. BURDEN,
Secretary.

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19. Fees for stamping and adjusting weights, &c.

19. *Question of Fees for stamping and adjusting Weights and Measures.*

From Inspector of Weights and Measures, Perth.

Weights and Measures Office, County Buildings,
Perth, August 2, 1867.

SIR,

THE frank obliging tone of your letter to me of 23rd May last, on the subject of steelyards, has emboldened me to bring the following matter connected with weights and measures under your notice.

At present the fees charged for examining, comparing, and stamping are, I humbly submit, not in fair proportion. For instance, a brass half cwt. is charged 9*d.*, an iron half cwt. only 3*d.*, and so on downwards; now, the time and trouble spent and taken in both are equal; again, stamping a five-gallon measure is charged 1*s.*, while a gallon is only charged 2*d.*, and here also the time and labour spent and given are nearly equal. For stamping dry wooden measures the fees are not at all adequate. To stamp any wooden measure, from a bushel downwards to a lippy,* I have five irons to heat, which generally speaking causes more expense for coals than the stamping fees will cover.

Again, I humbly apprehend there should be a regular scale of fees fixed for comparing or trying weights or measures with the imperial standards, which comparing or trying should also mean and include adjusting. About fourteen-fifteenths of all the weights brought to me require adjusting, for which, of course, separate fees are charged. It is to show how these fees, as well as the fees for stamping could be regulated, that I take it upon me to submit the following as fair charges for the work between the Inspector and the public.

Weights.	Comparing and Adjusting.			Stamping.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
56 lbs.	0	0	4	0	0	3	0	0	7
28 „	0	0	3	0	0	2	0	0	5
14 „	0	0	2	0	0	1	0	0	3
7 „	0	0	1	0	0	0½	0	0	1½
4 „	0	0	1	0	0	0½	0	0	1½
2 „	0	0	1	0	0	0½	0	0	1½
1 „	0	0	1	0	0	0½	0	0	1½
½ „	0	0	1	0	0	0½	0	0	1½
¼ „	0	0	1	0	0	0½	0	0	1½
2 ozs.	0	0	1	0	0	0½	0	0	1½
1 „	0	0	1	0	0	0½	0	0	1½
½ „	0	0	1	0	0	0½	0	0	1½
¼ „	0	0	1	0	0	0½	0	0	1½
2 dms.	0	0	1	0	0	0½	0	0	1½
1 „	0	0	1	0	0	0½	0	0	1½
½ „	0	0	1	0	0	0½	0	0	1½

Measures.	Comparing and Adjusting.			Stamping.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.
5 galls	0	0	3	0	0	3	0	0	6
4 „	0	0	3	0	0	3	0	0	6
3 „	0	0	2	0	0	2	0	0	4
1 „	0	0	2	0	0	2	0	0	4
½	0	0	2	0	0	1	0	0	3
1 quart	0	0	1	0	0	0½	0	0	1½
1 pint	0	0	1	0	0	0½	0	0	1½
½ „	0	0	1	0	0	0½	0	0	1½
1 gill	0	0	1	0	0	0½	0	0	1½
½ „	0	0	1	0	0	0½	0	0	1½
Dry Measures.									
Bushel	0	0	6	0	0	6	0	1	0
½ „	0	0	4	0	0	4	0	0	8
1 peck	0	0	3	0	0	3	0	0	6
½ „	0	0	3	0	0	3	0	0	6
1 lippy	0	0	2	0	0	2	0	0	4
½ „	0	0	2	0	0	2	0	0	4
Yard	0	0	1	0	0	0½	0	0	1½

* Lippy = quarter peck.

A scale of charges similar to the foregoing would show the public at once what they had to pay, and prevent imposition of any kind. At present Inspectors may easily term adjusting repairing, and make higher charges, but a definite scale would prevent any misapprehension in the matter. Small weights and measures are fully as difficult to adjust and stamp as large ones.

Trusting you will pardon my troubling you with this long effusion,

I have, &c.
WM. ANDREWS,
Inspector.

H. W. Chisholm, Esq.,
Warden of the Standards,
&c. &c. &c.

Warden of the Standards, in reply.

7, Old Palace Yard, August 26, 1867.

SIR,

I BEG to acknowledge your letter of the 22nd inst. on the subject of the fees for stamping weights and measures.

These charges are now fixed by statute, and any alteration can be made only by similar authority.

The subject, however, is one that will probably be brought under the consideration of the Standards Commission, and at the proper time I will take care that your letter and suggestion be laid before them.

I am, &c.
H. W. CHISHOLM.

The Inspector of Weights and Measures,
Perth.

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20. Standards at Truro not duly verified.

20. *Illegality of Truro Standard Weights not having been duly verified.*

To Town Clerk at Truro.

Standard Department, 7, Old Palace Yard,
August 21, 1867.

SIR,

WITH reference to your return to the Standards Commission, dated 6 August, of the local standard avoirdupois weights for the borough of Truro, stated to have been "*re-verified in the year* 1858" at the Exchequer, I beg to call your attention to the fact that these standards have not been so re-verified *since the year* 1826, as appears indeed by the official indenture of verification transmitted to this office during the present month through Messrs. Nicholl and Fowler, together with the standard weights for re-verification.

The smaller weights from 8 ozs. to 1 oz. were transmitted for re-verification, and marked Truro, 1858, have never yet been verified at this department, and do not bear the official stamp.*

None of these local standard weights have therefore been legal since the passing of the Act 22 & 23 Vict. c. 56. on 13 August 1859.

Their comparison and verification have now, however, been completed in this department, and they are ready for delivery to Messrs. Nicholl and Fowler for transmission to Truro.

I am, &c.
H. W. CHISHOLM.

The Town Clerk, Truro.

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21. Transfer of standards from University to Corporation of Cambridge.

21. *Question of legal authority of transfer of Local Standards from University to Corporation of Cambridge.*

To Town Clerk, Cambridge.

7, Old Palace Yard, September 19, 1867.

SIR,

IN reply to your letter of the 31st ult., and your requisition of the 9th inst., requesting that a set of standard weights and measures might be re-verified for the use of the corporation of Cambridge, to be delivered into the custody of Mr. E. Wells, Inspector of weights and measures for the borough of Cambridge, and stating that these standards formerly belonged to the University of Cambridge, but were handed over by them to the corporation of Cambridge under an arrangement made with that body a few years since, I beg to inform you that before the re-verification of these standards can be completed, it is necessary that I should receive a communication from the Chancellor, Vice-Chancellor, or his deputy of the University of Cambridge, authorizing me to verify these standards, and to deliver them into the custody of the Inspector named in your requisition of the 9th inst., as it appears by sect. 24. of the Act 5 & 6 Will. 4. c. 63. that the University of Cambridge and none other has power and authority to

* The Truro standards 8 oz. to 1 oz. were found to be stamped with the stamp of the *Founders' Company* only.

Appendix VI.—*continued.*

appoint the Inspector and to execute all duties relating to weights and measures in the town of Cambridge.

I am, &c.
H. W. Chisholm.

E. Foster, Esq.,
Town Clerk, Cambridge.

Town Clerk, Cambridge, in reply.

Sir, Cambridge, October 9, 1867.

Referring to your letter of the 19th ult., as to the re-delivery of the standard weights and measures received at your office from the Cambridge corporation officer, I would beg to call your attention to the Act passed June 5th, 1856, for confirming an award made between the University and borough of Cambridge, by sect. 13 of which all powers as to the supervision of weights, &c. was transferred to the borough justices from the University.

As the weights, &c. in question were received from the borough officer, it might perhaps be contended you cannot claim to resist their re-delivery to the authority from which you received them.

I am, &c.
Edmond Foster,
Town Clerk.

To the Warden of the Standards.

Warden of the Standards, in continuation.

Sir, 7, Old Palace Yard, October 10, 1867.

The confirmation of the transfer of the supervision of weights and measures from the University of Cambridge by the Local Personal Act 19 Vict. c. 17. (the Cambridge Award Act, 1856), the existence of which has for the first time been brought to my notice by your letter of yesterday's date, removes the objection raised in this department to the verification of the standards for the corporation of Cambridge.

In the meantime no delay has occurred in their verification from the question having been raised, and their verification will be completed as soon as some trifling adjustment which has been requisite has been completed by the agents.

I am, &c.
H. W. Chisholm.

E. Foster, Esq.,
Town Clerk, Cambridge.

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22. Expenses of official re-verification of standards, &c.

22. *Expenses connected with the re-verification in the Standards Department of Local Standards of Weights and Measures; and question of local verification of these Standards.*

Martyn J. Roberts, Esq., J.P. and D.L. for County of Brecon to the Home Secretary.

Pendarren House, near Crickhowell,
Sir, November 14, 1867.

A very large cost being annually incurred by the travelling expenses of our country Inspectors of Weights and Measures while adjusting these throughout our county, and in addition the very great inconvenience to our shopkeepers and dealers, arising from the distant intervals of the Inspectors' visits to them, often seven or eight months, I, to avoid all these, moved for and obtained an order at our quarter sessions, that each petty sessional division should be supplied with a set of weights and measures in order that shopkeepers, &c. might be able *frequently* to adjust their weights and measures by these kept at each petty sessional division; these were obtained, and shopkeepers expressed their great thanks for the accommodation. But now arrives a new difficulty. By the 22 & 23 Vict. c. 56. s. 1. it appears that these sets of weights, &c. (which are subsidiary to the county general set) will not be legal tests unless they are frequently adjusted by the *Government Standards in London.* And I am told that the cost of this adjustment by the standard government weights is heavy even for *one* set; and as we have 12 or 14 of the subsidiary sets in our county, a like fee upon each of these would be unbearable.

I therefore respectfully beg to ask if you would point out or make order for any method whereby our county may obtain the great convenience of the use of these subsidiary sets of weights, &c. without the burden of the enormous cost of fees, &c. in having them tested in London. I may add that they have been tested by our county standards and are found to be correct. Apologising for thus troubling you, which I would not do were it not for the great public convenience these subsidiary sets will be to our county, and the plan probably would be extended to other counties.

I have, &c.
Martyn J. Roberts,
J. P. and D. L. for the County of Brecon.

The Right Hon. the Home Secretary.

(Referred to Treasury by the Home Secretary; transmitted to Board of Trade, and Warden of the Standards directed to report.)

Report to the Board of Trade by the Warden of the Standards, upon the Expenses connected with the Official Verification of Local Standards of Weights and Measures, and the question of the Local Re-verification of these Standards.

Mr. Martyn J. Roberts, a justice of the peace and deputy lieutenant for the county of Brecon, in his letter to the Home Secretary of 19th November 1867, complains of "the burden of the enormous cost of fees, &c. in having "the local standards tested in London;" he designates as "unbearable" the expense of the periodical official re-verification of the subsidiary county sets of standards; and asks that his own and other counties may be relieved from these charges.

In reporting upon this subject, for the information of the Government, it may be expedient also to consider more fully the question of the local re-verification of these standards.

Exchequer fees and stamp duty on verifications, formerly payable.

The fees *formerly* payable at the Exchequer for verifying standards were as follow:—

	£	s.	d.
For a set of troy weights - -	1	14	0
„ avoirdupois weights -	0	14	0
„ measures of capacity and length - - -	1	0	0

These fees were payable both on the original verification and on every subsequent re-verification.

There was also a stamp duty of 3*l.* 10*s.* on the indenture of verification; but this expense was not incurred on re-verifications, which were endorsed on the original indenture.

Abolished in 1866, by Standards Act.

These official fees and stamp duty were abolished by s. 9 of the Standards Act, 1866, 29 & 30 Vict. c. 82., and have not been charged since 6th August 1866, the date of passing of the Act.

Charge of London tradesmen for adjusting standards, transport, &c.

There remains therefore only the charge of the London tradesman for adjusting the standards and obtaining their verification in this department, including also the expenses of packing and transport.

As to the amount of this charge I have made inquiries of two of the London weight and measure makers to whom the greater part of this business falls, and whose reputation, workmanship, and charges are the highest. The following are the results:—

	£	s.	d.	£	s.	d.
Cleaning and adjusting a set of avoirdupois weights (including new weights, if required, from 2 ozs. to ½ dram), transport to and from Standards Department, repacking, &c. - - -	3	5	0	3	0	0
Do. a set of measures - -	3	5	0	4	10	0
Full average cost of transport to and from the country - -	0	10	0	0	10	0
	£7	0	0	8	0	0

Troy standards are seldom used.

It is clear, therefore, that the total expense of adjusting and verifying in London a country set of avoirdupois weights, being 16 in number, from 56 lbs. to ½ dram, does not exceed 4*l.*, and that of a full set of weights and measures, including 10 measures of capacity, from a bushel to ½ gill, and a yard measure, does not cost more than 8*l.*

By s. 1 of the Act of 1859, 22 & 23 Vict. c. 56., no local standard weights are legal unless verified in this department within five years, and measures within ten years. *The total expense therefore of the legal re-verification in London of a full set of country standard weights and measures for a period of ten years would not exceed* 12*l., or, on an average* 1*l.* 4*s. per annum.*

Legal provision for local *re-verification* of subsidiary county standards.

It should, however, be observed that in this last-mentioned clause there is a provision that in any county containing more than one district for the inspection of weights and measures their standards may be *locally* re-verified

Appendix VI.—*continued.*

within the prescribed periods by comparison with a set which has been duly re-verified in this department.

Act 22 & 23 Vict. c. 56. s. 1.

The following are the words of s. 1 of 22 & 23 Vict. c. 56. It may be observed that this Act is applicable to Great Britain only. But a similar enactment is contained in s. 15 of the Irish Weights and Measures Act, 1860, 23 & 24 Vict. c. 119.:—

For periodical re-verification of local standards.

"No model or copy of any of the imperial standards of weights shall be deemed legal, or used for the purpose of enforcing the provisions of this Act, or the Act passed in the session holden in the fifth and sixth years of the reign of King William the Fourth, chapter sixty-three, unless the same have been compared or re-verified by the Comptroller-General, or some other officer of the Exchequer duly authorized, within five years before the time when it is so used; and no model or copy of any of the imperial standards of measures shall be deemed legal or used for the purposes aforesaid unless it have been compared or re-verified as aforesaid within ten years before the time when it is so used, or in any county containing more than one district for the inspection of weights and measures unless such model or copy have been compared by the Inspector of Weights and Measures in the district in which it is used, in the presence of one justice of the county, with a model or copy of the imperial standards of weight duly compared and verified at the Exchequer within five years of its being so used, and found on such comparison by such Inspector to be correct, or with a model or copy of the imperial standard of measure duly compared and verified at the Exchequer within ten years of its being so used, and found on such comparison by such Inspector to be correct; and the expenses incurred in and about such comparison or re-verification of any such model or copy of any imperial standard of weight or measure shall in all cases be paid in the same manner and out of the same funds, as is provided for the procuring of such models and copies."

As the law now stands, therefore, there is no impediment whatever to the subsidiary standards of the county of Brecon being *locally re-verified.*

But local standards must be originally verified in Standards Department.

But this provision applies only to their *re-verification.* Before any local weights and measures can be legally used as standards it is imperative under s. 17 of the Act of 1835, 5 & 6 Will. 4. c. 63., that they be verified and stamped in the Standards Department, in order to constitute them "Copies of the imperial standard weights and measures," as described in the Act.

Local standards of county of Brecon.

It appears from the Register of Verifications in the Standards Department that only one full set of weights and measures has been originally verified for the county of Brecon, viz., on 25th November 1825. This set was re-verified on 17*th September* 1857, and the *weights* were again re-verified on 1*st November* 1862.

At the present time, therefore, the county of Brecon does not possess one single standard weight or measure which is legal.*

Practice of employing London tradesmen for verifications in Standards Department.

I should point out that in every instance of local standards being compared and verified in this Department, it is the invariable practice that they should pass through the hands of a London weight and measure maker, who undertakes their adjustment and removal to and from this office, as neither the adjustment or removal of standards forms part of the duties of the Department. This practice of thus employing a London tradesman is also in many cases absolutely necessary, when, as very frequently happens, the local standards sent for verification are found upon comparison to require re-adjustment.

How provision for local re-verification originally inserted in Act of 1859.

It may be added, with reference to the principle of *locally* re-verifying standards, that the provision in s. 1 of the Act of 1859, was not contained in the original Bill, which was brought into the House of Commons by private members, and was introduced by Mr. Locke. The provision was inserted in committee upon, as I understand, the motion of Mr. Henley, the reason assigned being the great expense to the counties of sending all their standards to London for periodical re-verification. There appears to have been no discussion upon this point, at least none is reported by Hansard. The Bill passed through committee at a very late period of the session, on 5th August 1859, and the special attention of the Government does not appear to have been drawn to it.

Local verification carried out much further in Ireland.

This principle is carried out in Ireland to a far larger extent, under the Weights and Measures Acts of 1860 and 1862, specially applicable to that country.

Sub-standards of iron used by inspectors there.

Sub-standards of iron are used throughout Ireland by the Inspectors. These sub-standards are both verified and re-verified in their several localities, and there is no provision of law or official regulation by which the Standards Department has any cognizance whatever of these sub-standards.

Information in returns to Standard Commission.

Information respecting these sub-standards has, however, been recently obtained by means of printed forms of returns, to be made to the Standards Commission, which have been circulated throughout the United Kingdom with the view of furnishing the fullest information of the number of local standards now in use, of the number of Inspectors of Weights and Measures, their districts, and work performed, the receipts and expenditure connected with such expenditure, &c.

As to local standards in Great Britain and in county of Brecon.

Of these printed forms of returns, 1,176 were sent out to 492 different places in *Great Britain*, and 411 have been returned filled up from 232 places, in which 510 Inspectors are employed. The printed forms were sent out early in September, and it will be seen that they have not been yet returned from half the places to which they were sent. No return has yet been made for the county of Brecon. It would appear from the Municipal Directory that there are nine petty sessional districts in this county.

As to local standards and sub-standards in Ireland.

The circulation of the printed forms in *Ireland* was undertaken by the Inspector-General of the Constabulary, by whose assistance what appears to be the whole number has been returned to this Department. The Acts of 1860 and 1862 require that *a copy of the imperial standards* be provided for every county, and for every borough in Ireland; and that not less than one *set of sub-standards* "be "provided for each petty sessions district in every county, "and not less than two such sets shall be provided for "every borough."

(Thom's Almanack.)

There appear to be 32 counties and 28 boroughs in Ireland. It is shown by the returns that there are throughout Ireland only 36 sets of local standards in use, comprehending 931 weights, whilst there are 598 sets of sub-standards, comprehending 13,298 weights and measures. These sets of sub-standards are in the custody of as many Inspectors of Weights and Measures, the inspectors and sub-inspectors of constabulary being *ex officio* such. A full set comprehends, as before stated, 16 avoirdupois weights and 11 measures. No troy standards or bullion standards appear to be used in Ireland, with the single exception of one set of 15 troy weights belonging to Westmeath.

Extent of local verification of standards.

It will thus appear that whilst the local re-verification of standards by the Inspectors of Weights and Measures is permitted by law to a limited extent in Great Britain,—although practically a large proportion of these standards are re-verified in this Department, and all must be so originally verified,—yet in Ireland, where the Inspectors use sub-standards, the law permits, and it is the established practice, that not a single sub-standard is either verified or re-verified in the Standards Department, but only by the local Inspector. It should be observed that under s. 8 of the Act of 1860, these sub-standards are to be considered to all intents the same as the local standards for all purposes of comparison and verification.

This provision of law, and this practice, has existed only since 1860, being authorized by s. 7 of the Act 23 & 24 Vict. c. 19., passed 28th August 1860. There is no record in Hansard of the attention of Parliament having been specially drawn to the subject, or any discussion having occurred in relation to it, either in 1860 or when the Act was amended in 1862.

If this local verification satisfactory, or consistent with standard accuracy?

It may deserve consideration whether the local verification or re-verification of *standards* can be either satisfactory or consistent with standard accuracy. I have shown that it is entirely a new principle and practice recently introduced, and sanctioned by law without special attention having been drawn to it; and that the saving of expense is comparatively insignificant. I believe that there are very few local Inspectors who are competent to compare *standard* weights, or who have balances of sufficient accuracy to test them within the prescribed limits of precision. And yet at the present time there are probably not less than 1,000 of these local officers to whom this power is now permitted by law.

Reference of subject to Standards Commission.

I would earnestly deprecate any further extension of this principle of local verification of *standards*, and any facilities being afforded for further carrying it out in practice. I shall consider it my duty to bring the matter specially under the consideration of the Standards Commission, to whom the subject of the execution of the duties of the local Inspectors, and their relation to the Standards Department, has been particularly referred. It may be added that I am now engaged in preparing a statement, to be laid before the Commission, of the law and practice in France

* Since the date of this Report, a full set was re-verified for the county of Brecon on 28th January 1868.

Appendix VI.—*continued.*

with regard to the verification of standards, and the local comparison and inspection of weights and measures in that country.

Conclusion and recapitulation.

In conclusion, and by way of recapitulation, I beg to suggest that it may now be sufficient to state in reply to Mr. M. Roberts:

1. That the clause of the Act of 1859 quoted by him now authorizes the *local re-verification*, within the prescribed periods, of the county subsidiary standards, the comparison to be made by the district Inspector, in the presence of one justice of the county, with one of the county standards duly compared and verified at the Standards Department in London.

2. But that before such subsidiary weights and measures can be constituted legal standards, they must first be compared and verified in the Standards Department under s. 17 of the Act of 1835, 5 & 6 Will. 4. c. 63.

3. That all official fees for such comparison and verification were abolished from 6th August 1866, by s. 9 of the Standards Act, 29 & 30 Vict. c. 82.

4. That it appears from inquiries made that the total expense of adjusting, packing, transport, &c. of a set of county avoirdupois standard weights, by London tradesmen whose reputation, workmanship, and charges may be considered to be the highest, does not exceed 4*l.*, and of a full set of weights and measures, 8*l.*, averaging, therefore, for a period of ten years, only 1*l.* 4*s.* per annum for a full set.

5. That as the whole question of the execution of the duties of the local Inspectors of Weights and Measures, and their relation to the Standards Department, has been referred to the Standards Commission now sitting, it does not appear to be expedient at the present time to make any alteration either in the law or the official regulations relating to the verification of the local standards.

H. W. Chisholm,
Warden.

Standards Department,
December 12, 1867.

From Martyn J. Roberts, Esq., to Warden of the Standards.

Pendarren House, near Crickhowell,
January 27, 1868.

Sir,

I have been favoured with a letter from Mr. Secretary Hardy, containing an extract from your report upon my letter on the subject of testing the subsidiary sets of weights, &c. of the county of Brecon.

In the 4th clause of this report you say that from inquiries you find that the total cost of adjusting, transport, &c. of a set of weights by London tradesmen, whose reputation, workmanship, and charges are of the highest, will not exceed 4*l.*

Now may I respectfully ask if this 4*l.* includes the *purchase* of these weights, and if it does, what will be the cost of only *adjusting* the weights and measures at the Standards Office. I ask this because the 14 sets of subsidiary weights for our county have already been purchased, they are of a kind suggested by me, and which I hope you will approve of, viz., iron weights, galvanized, in order to prevent any change in them from oxidation. The thin coating upon them of zinc effectually prevents any rusting of the iron, as this zinc, even if oxidated, does not scale off as the rust of iron would do, and the entire mass is protected.

I trust the Standards Committee now sitting will recommend that tradesmen's weights, &c. shall be adjusted and tested at the court house of every petty sessional division in counties, and thus put an end to the present expensive and unsatisfactory method of doing this by travelling inspectors, whose approach is always known by tradesmen, and those who are dishonest conceal their defective weights until the Inspector has passed that district, when these false weights are again brought out for use.

But if a standard set was constantly at hand whereby tradesmen could adjust their own sets, there would be no excuse for defective weights, and the police could at any moment, without warning, pounce down upon dishonest tradesmen and seize the defective weights.

Perhaps you will do me the favour to name this from me to the Standards Committee.

I have, &c.

Martyn Roberts,
J. P. for Breconshire.

The Warden of the Standards.

Reply of Warden of the Standards to M. J. Roberts, Esq.

7, Old Palace Yard, January 28, 1868.

Sir,

In reply to your letter of the 27th inst. I beg to inform you that it is stated in my report, dated 12th December 1867, that the result of my inquiries from London tradesmen of the highest repute is, that the total expense of transport, adjusting, packing, and verifying at the Standards Department a full set of local standards, viz., avoirdupois weights twice within a period of 10 years, and measures of capacity and length once, would not on an average exceed 1*l.* 4*s.* per annum or 12*l.* in the whole.

This statement is founded on the following estimates of the average charges made:—

	£	s.	d.	£	s.	d.
Cleaning and adjusting a set of avoirdupois weights (including new weights, if required, from 2 ozs. to ½ drachm), transport to and from Standards Department, repacking, &c. - - -	3	5	0	3	0	0
Do. a set of measures - -	3	5	0	4	10	0
Full average cost of transport to and from the country - -	0	10	0	0	10	0
	£7	0	0	8	0	0

This amount does not, of course, include the original cost of the standards. No standards are adjusted in the Standards Department, nor is there any charge for the official verification.

With respect to the 14 sets of subsidiary weights made of galvanized iron, made under your directions for the county of Brecon, I have to observe that before any copies of the imperial standards can be legally used as local standards they must under s. 17 of the Act 5 & 6 Will. 4. c. 63. and the provisions of the Standards Act, 1866, be verified and stamped at the Standards Department.

There has never, I believe, been a single instance of an iron weight having been presented for verification at this Department. As models or copies of the imperial standard weights they are always made either of brass or gun metal, the only metals used for the official standards. The Standards Commission in their report of 1841, s. 72, expressly recommend that the construction and values of local standards be generally similar to those of the official standards. I should consider it to be my duty, if any iron weights were presented at this Department for comparison and verification as local standards, to decline to compare and verify them, unless expressly authorized to do so by the Board of Trade; and it is not probable that the Board of Trade would authorize any departure from the usual practice without referring the subject to the Standards Commission for their opinion.

In the meantime, as the whole subject of the construction and verification of local standards must come under the consideration of the Standards Commission, I will take an early opportunity of laying your letter before them, and of drawing their attention to it, as well as to the subject of the testing and inspection of local weights and measures referred to in the concluding paragraphs.

I am, &c.

H. W. Chisholm,
Warden of the Standards.

Further Memorandum for the Standards Commission, by the Warden of the Standards, dated February 18, 1868.

Recent evidence of illegal practices in local verification of standards.

From the passing of the Act of 1859, under s. 1 of which the subsidiary sets of county standards were allowed to be locally compared and re-verified by the inspectors with a set of standards duly verified at the Standards Department, and up to the present time, there have been but few opportunities of any official cognizance of the mode in which the provision of law was carried out, or of the actual condition of the local standards before adjustment for re-verification. No information of the state of such of the local standards as were *locally re-verified* could reach the Standards Department, and it is the practice to send such of them as are to be *officially re-verified* to a London manufacturer to be adjusted and put in proper condition before being sent to the Department.

Much evidence upon the subject has, however, recently been laid before the Department, partly through the returns made to the Standard Commission from the several Inspectors of Weights and Measures, and partly through the regulation of the department requiring that in cases where old local standards are too much worn or too defective to be re-adjusted as standards, and are to be replaced by new standards, the old copies are to be produced at the Department for the purpose of having the official stamp effaced. Several of the old standards thus sent are retained for the inspection of the Commission, and it may thus be seen

Appendix VI.—*continued.*

how very unfit they are to be used as standards. There are some instances, also, of such old standards having been long in use though never officially verified and stamped. Some of these standards bear the stamp of the Founders' Company. There is, however, a good deal of hesitation on the part of the London makers in sending up these old standards for fear of offending their customers, and very few are actually sent, the Department not being empowered to compel their production.

It appeared to the Warden of the Standards so important at once to call attention to these irregularities, that he lost no time in reporting them officially to the Board of Trade and requesting instructions for his guidance. This report and the minutes of the Board of Trade are as follows:—

The Warden of the Standards to the Board of Trade. Report of Illegal Practices in Local Re-verification of Standard Weights and Measures.

SIR, 7, Old Palace Yard, January 27, 1868.

WITH reference to my report of 12th December 1867, upon the subject of the local re-verification of copies of the imperial standards of weights and measures, a further important point connected with this subject has since come under my notice, and to which I beg to call the attention of the Board of Trade.

This point relates to the mode in which the local officers practically carry out the provisions of s. 1 of the Act of 1859, 22 & 23 Vict. c. 56., authorizing the periodical local comparison and re-verification of any standards belonging to sub-divisions of counties, by the Inspectors of the district, with a local standard duly compared and verified at the Standards Department.

The provisions of this clause are carried out by Inspectors of Weights and Measures in different localities to the following extent:—

1. The standards of *boroughs* are locally re-verified by comparison with county standards.

2. The standards of *one county* are locally re-verified by comparison with standards belonging to *another* county.

3. New local standard weights are substituted for the smaller local standard weights when worn and defective, and these new weights are used as standards without being compared and verified at the Standards Department, or being officially stamped as legal copies of the imperial standards, as directed by the s. 17 of the Act 5 & 6 Will. 4. c. 63.

4. County standards, when defective, are roughly adjusted with lead or other soft heavy metal, and are locally re-verified and used as standards, although wholly unfit so to be used; notwithstanding the provisions of s. 5. of the Act 5 & 6 Will. 4. c. 63., enacting that all local standards which may have become defective, or have been mended in consequence of any wear or accident, shall forthwith be sent to the Standards Office for comparison and re-verification, and shall be stamped and re-verified, provided the officer appointed for such verification shall deem them fit to be used for the purposes of standards.

It is the invariable practice of the Standards Department to reject all local standard weights in which any lead or soft metal used for the purpose of adjustment is visible.

With regard to the cases Nos. 1 and 3, there can be no doubt, in my opinion, that the practices stated are illegal.

Some doubt may exist whether the practices stated in Nos. 2 and 4 are sanctioned by law, under s. 1 of the Act of 1859. In my opinion they are not so sanctioned. There is, however, this difference in the results of the two practices. If sanctioned by law, no greater evil would be likely to result from No. 2, than if the local standards in any one county were compared with those of the same county.

But the practice stated in case No. 4 is altogether destructive to the accuracy of local standard weights, and if not at the present time absolutely illegal, should in my opinion be declared so by the legislature at the earliest period.

If my Lords should so think fit, I could prepare a case for the law officers upon these two points. But it may, perhaps, be sufficient that the attention of the Standards Commission be drawn to the whole subject of the local re-verification of standards, in order that they may consider and recommend what alteration and improvements it may in their opinion be expedient to make in this branch of the weights and measures laws.

Upon this subject I beg to be favoured with their Lordships' instructions. I append copies of s. 1 of the Act of 1859, and s. 5 of the Act of 1835, herein referred to.

I am, &c.

H. W. CHISHOLM,
Warden of the Standards.

The Assistant Secretary,
Commercial Department,
Board of Trade.

ENCLOSURES.

Copy of s. 1 of Act of 1859, 22 & 23 Vict. c. 56. (recited at p. 273).

Copy of s. 5. of Act of 1835, 5 & 6 W. 4. c. 63.

"And be it enacted, that all copies of the imperial standard "weights and measures which may have become defective, or "have been mended in consequence of any wear or accident, "shall forthwith be sent to the Exchequer at Westminster, for "the purpose of being again compared and verified, and shall be "stamped as re-verified copies of the imperial standard weights "and measures, provided that the Comptroller-General, or other "officer appointed for such verification, shall deem them fit to be "used for the purposes of standards; and every new comparison "and verification shall be endorsed upon the original indenture "of verification," &c.

MINUTES OF THE BOARD OF TRADE.

MR. MALLET.

I think there can be doubt as to the illegality of the practices 1, 2, 3, and 4, to which the Warden calls attention, so little that I should scarcely think it necessary to consult the law officers. Mr. Farrer will no doubt state his opinion on this point.

Considering the lax practice and discipline of recent years under which these abuses have arisen, it will probably be sufficient at present, before taking measures to enforce the law, to call the attention of the Standards Commission to these points as suggested by Mr. Chisholm.

I think the importance of searching reform is manifest.

January 28. L. M.

MR. FARRER.

I think all four processes illegal. But it is probable that there are many other evils and irregularities, and it will probably be the best way to refer these points to the Commission in the first instance, so as to obtain from them a complete report. Perhaps it will be as well also to inform the Home Office, since, under the present divided system of jurisdiction, the Board of Trade have nothing to do directly with the inspectors.

January 30. T. H. F.

MR. CAVE.

I see no reason for a case for law officers. Let the Commission consider the points, and refer for advice if they please. When the report is made, it must be decided what office is to bring in and enforce any enactment which may be necessary.

January 31. S. C.

THE DUKE OF RICHMOND.

I think the Commission should detect all the irregularities they can, and report them. All weights and measures are now under the jurisdiction of the magistrates. I conclude if action is to be taken, the Home Office would be the proper department.

February 5. R.

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23. *Request for a Linear Standard Measure.*

From Croft, Butterfield, & Co., Engine and Machine Tool Makers.

23. Application for linear standard measure.

DEAR SIR, Keighley, December 17, 1867.

WE require a linear standard measure of the realm; will you kindly say if you can supply this, 3 feet or rather say 6 feet long; if not, please direct us how to get it, as we are informed such is kept by Government authorities, and oblige,

Yours respectfully,
Pro CROFT, BUTTERFIELD, & Co.,
W. J. WILKINSON.

To the Secretary of the Board of Trade,
London.

Warden of the Standards, in reply.

GENTLEMEN, 7, Old Palace Yard, Dec. 20, 1867.

YOUR letter of the 17th inst. addressed to the Secretary of the Board of Trade, has been referred to me.

No standard measures are kept by any Government department for disposal. The standards in this department are kept for the sole purpose of comparing and verifying copies under the existing regulations. At present such comparisons and verifications are made *only for the local authorities*, who are by law required to furnish the local Inspector of Weights and Measures with copies of the imperial standards in order to test all commercial weights and measures.

No standards are compared and verified for private individuals under the existing regulations, nor is the staff of the department at present sufficient to undertake the

Appendix VI.—*continued.*

additional business that would be thereby imposed. The revision of the business of the department is, however, now under the consideration of the Standards Commission now sitting, and among the points which they will have to consider, will be how far, and under what regulation, it may be advisable that standards weights and measures might be compared and verified in the Standards Department for private individuals, or manufacturing or other firms. I will take care that your application be placed before them.

The only standard measure of length now existing is the *yard*. And one of the points referred to the Standards Commission is to consider and report, what increase in the number of standards, particularly of standards of length is now expedient, and their opinion upon this point will in due time be given.

In the meantime, although you may not be able to procure a standard measure of 3 feet, there is no doubt that Messrs. Troughton and Simms, of 138, Fleet Street, London, who constructed the standard measure of length for this department, will on application supply you with any accurate measure of length that you may require.

I am, &c.

Messrs. Croft, Butterfield, & Co., Keighley. H. W. CHISHOLM.

. Stated omalies in eights and easures ts.

24. *Inspection of Weights of Weighing Machines; seizure of false Balances, &c., and defective Glass Measures.*

From Inspector of Weights and Measures, Perth.

Weights and Measures Office, Perth,

SIR, January 23, 1868.

I TAKE the liberty of again troubling you on the subject of weights and measures, to point out what to me seem anomalies in the existing Acts.

If the blocks of metal forming no aliquot part of a hundredweight used as weights on many steelyards are considered part of the weighing machine, I presume that where the imperial standard weights are used they are part of the weighing machine also, and as such do not require to be stamped.

It is customary for merchants to have small weighing machines in their shops or premises which work with other than imperial weights. These weights or blocks of metal lie about amongst the regular imperial weights used for beams and scales; in such shops or premises there is nothing to prevent such merchants from using the blocks for their beams and scales instead of the imperial weights, and thus defraud their customers, whereas if the law compelled all weighing machines to be made to work with imperial weights, no such opportunity would exist.

Beams and scales, though erroneous or unjust, cannot be seized and carried off by the Inspector for the purposes of prosecution, unless they are used as pointed out in sect. 3 of the Act 22 & 23 Vict. c. 56.; it would be very desirable that the same rule should extend to all shops and premises where goods are weighed.

Crystal gill measures are quite common in hotels and public houses in Scotland, and I should say that at least four-fifths of those used do not hold the quantity which they represent; I have seen them a fourth deficient. Yet these deficient measures cannot be seized by the Inspector, though found along with pewter measures in the bars of such houses.

The pewter measures, if deficient or unstamped, may be seized, but the crystal measures, though almost always the most glaringly deficient, cannot. I never knew a case where the provisions of the 21st section of the Act 5 & 6 Will. 4. c. 63. relative to such crystal measures was resorted to, hence the evil goes on unchecked.

Trusting you will pardon this intrusion,

I have, &c.

H. W. Chisholm, Esq., Warden of the Standards, &c. &c. WM. ANDREWS, Inspector.

Warden of the Standards, in reply.

SIR, 7, Old Palace Yard, Jan. 24, 1868.

I BEG to acknowledge your letter of yesterday's date, and am glad to receive any information upon the points referred to, which have already engaged my attention, and which I shall take care to bring under the consideration of the Standards Commission.

It is no part of my official duty to give an authoritative opinion upon the legal construction of the Weights and Measures Acts. This is entrusted by law to magistrates. But I may point out that whilst sect. 28 of Act 5 & 6 Will. 4. c. 63. gives power to Inspectors to examine all "*steelyards* " *or other weighing machines,*" and renders persons possessing them liable to penalties "if found incorrect or other- " wise unjust," the law does not appear to sanction the use of any separate or definite weights to be used with any weighing machine (and a pair of scales is a weighing machine), except the imperial weights duly authorized by the Act and stamped by the Inspector, as specified in sect. 21.

The block of metal which traverses the steelyard, and is thus a varying not a definite quantity of weight, is evidently part of this weighing machine, which is incomplete without it. But the case appears to be very different with respect to separate blocks of metal used as weights indiscriminately with imperial weights on weighing machines. I apprehend that such weights are altogether illegal, as much so when used on what is ordinarily termed a "weigh- " ing machine," as upon a pair of scales or common balance.

There is in fact no special provision made by law for the inspection and verification of the peculiar weights used with weighing machines, or for legalizing these weights.

The term *weighing machine* used in sect. 28 of the Act 5 & 6 Will. 4. c. 63. is itself of an indefinite character, and the word *weighbridge* should perhaps have been more properly used.

In France the importance of regulating these weighing machines, and the weights attached to them, has not been overlooked, as it has hitherto been in this kingdom. The large weighing machines, there called *balances-bascules*, are authorized to be used only for wholesale trade transactions, and must be constructed to carry a weight of at least 100 kilograms (220 lbs. avoir.). The weights used with them must be the ordinary legal metric weights, and the balance be adjusted so accurately that each weight must show ten times its actual weight. These *balances-bascules*, as well as the weights used with them, are subject to original verification and periodical inspection, and must be stamped by the proper officer. No error exceeding $\frac{1}{1000}$th part of the weight shown by the balance is allowed.

I believe that you correctly describe the present anomalous provisions of law by which "beams, scales, and " balances," if found unjust, are liable to seizure and forfeiture, when used or to be used for purposes of trade *in any open place* under 22 & 23 Vict. c. 56. s. 3., but are not liable to seizure, &c. in any shops or premises under 5 & 6 Will. 4. c. 63. s. 28.

In this respect the law appears to require amendment. But the point deserves to be fully considered, the value of these weighing instruments being far greater than that of a single weight. And although it might be right to make unjust steelyards liable to seizure, this penalty could hardly be extended to defective large weighing machines.

In France no merely defective weight, measure, or weighing machine is liable to seizure and forfeiture, but every such instrument of weighing or measuring, if *fraudulently used*, is liable to seizure, forfeiture, and to be broken up.

With respect to glass vessels *used as measures* I confess the law appears to be entirely sufficient. When vessels made of glass or other material are not represented as containing any definite quantity or measure, they are merely vessels, not measures, and are exempt from the operation of the Weights and Measures Acts under 5 & 6 Will. 4. c. 63. s. 56. But if any glass vessel is represented as containing the amount of any imperial measure, or any multiple thereof, such vessel, though exempt from being stamped, is in other respects subject to inspection under s. 21 of the same Act, and if found deficient in quantity the person using it is liable to the same "forfeiture and penalties" as for unjust weights and measures.

It is true that there appears here to be an insufficiency in the words of this clause, as the person is made liable to these forfeitures and penalties "*on conviction*," and no direct authority is given to the Inspector to seize the deficient glass measures. But that authority is already contained in the first part of the clause, where it is stated that " every light or unjust weight or measure so used shall on " being discovered by an inspector, &c. *be seized*, and shall " on conviction of the person using or possessing the same " be forfeited." It appears to have been held that this is the law, and so decided in the case Washington *v.* Young, 14 J. P. 591, 19 L. J. m. 248.

I am, &c.

H. W. CHISHOLM,
Warden of the Standards.

Mr. W. Andrews, Inspector of Weights and Measures, Perth.

Appendix VI.—*continued.*

25. Union of boroughs for purposes of inspection.

25. *Re-verification and stamping for Borough of Margate, and adjacent Liberties of Dover, of Standards verified for Borough of Dover.*

The Warden of the Standards to the Assistant Secretary, Board of Trade.

Sir, 7, Old Palace Yard, March 18, 1868.

An application has been made to me on behalf of the town clerk of the borough of Margate under the following circumstances.

It is stated that an arrangement has been made between the Town Council of Dover and the Town Council of Margate that the Inspector of Weights and Measures for Margate shall be and *he has been appointed* by the Town Council of Dover to be Inspector of Weights and Measures for those parts of the liberties of Dover which are outside the borough of Margate;

That until very recently the Inspector of Weights and Measures for Margate has been appointed by the Town Council of Dover;

That upon the appointment by the Town Council of Margate of their present Inspector, it has been proposed that the standards previously used by the late Inspector, *and which belonged to the Dover Town Council*, should be used by and handed over to the Inspector now appointed by the Town Council of Margate. These standards are now in London, in the hands of Messrs. De Grave, to be adjusted by them, and to be verified in this Department, and I am asked *whether these standards, which have been verified for the borough of Dover, can be re-verified and stamped for the borough of Margate, as well as for the liberties of Dover, and indentures issued accordingly*, so as thus to avoid the useless expense of two sets of standard weights and measures for the same Inspector and the same locality.

This application may be considered under three heads:—

1. The appointment of the Inspector.
2. The use of standards belonging to one borough in another borough.
3. The proposal to verify one set of standards for two distinct boroughs.

1. The appointment of Inspectors of Weights and Measures and providing local standards *for municipal boroughs* are authorized by s. 4. of the Act 22 & 23 Vict. c. 56. and s. 6. of 24 & 25 Vict. c. 75., the town councils being empowered to exercise these and other functions relating to weights and measures *solely within their respective boroughs.*

Under s. 25. of the Act 5 & 6 Will. 4. c. 63., by which Act the present system of inspection of weights and measures was first established, Inspectors are to be appointed by the local authorities to act *within the limits of their respective jurisdictions*, and the powers of such Inspectors are to be exercised *within such limits exclusively.*

It follows that the appointment by the Town Council of Dover of an Inspector for the borough of Margate, as well as his acting until recently as such, was altogether illegal.

There appears, however, to be no illegality in the same person being appointed Inspector in two adjacent boroughs, if duly appointed by the competent authorities in each borough.

But neither this Department nor the Board of Trade is now authorized by law to interfere in the appointment of the local Inspectors of Weights and Measures, and the only object in thus referring to the subject is to add another instance of the irregularities committed under the present system of inspection, and of the necessity of establishing an efficient control over the appointment of Inspectors and the exercise of their duties.

2. The preceding remarks are applicable also to the illegal use of standards belonging to one borough or locality, in another borough or locality. At present there is no official control over such illegal use, and although numerous instances of the illegal transfer of standards become officially known to the Department, it is not empowered by law to interfere. The due execution of the weights and measures laws is intrusted to the local magistrates, or to town councils of municipal boroughs, and even to lords of manors, by whom these illegal acts are either committed or authorized.

The observations under these two heads are made only for the information of the Board of Trade, and with a view to the attention of the Standards Commission being drawn to them. It is under the third head that I have to request their Lordships' instructions.

3. There is no precedent of verifying in this Department one set of standards for two distinct local jurisdictions, and as belonging to both. Such verification is not authorized by law, but on the other hand there is no prohibition against it, and the verification of one set of standards for two adjacent boroughs, and their consequent use under the circumstances set forth, can hardly be considered more illegal than the appointment of one Inspector for the two boroughs.

I may refer to s. 11 of the Standards Act of 1866, empowering the Warden of the Standards to conduct all such verifications, &c. as the Board of Trade from time to time authorize or direct, which appears to enable their Lordships, if they should so think fit, to authorize me to comply with the application now made. The application is in my opinion not unreasonable, its object also being to effect legally what has hitherto been done illegally.

I am, &c.
H. W. Chisholm,
Warden.

The Assistant Secretary,
Commercial Department,
Board of Trade.

The Board of Trade, by Minute of 24 March 1868, authorized the Warden of the Standards to comply with this application.

Warden of the Standards to Messrs. De Grave, Short, & Co.

Gentlemen, 7, Old Palace Yard, March 25, 1868.

With respect to your letter of the 13th inst., enclosing an application from the town clerk of Margate to have the set of standards belonging to the borough of Dover verified and stamped for the borough of Margate as well as for the liberties of Dover, I have to observe,—

1. The appointment of Inspector of Weights and Measures and providing local standards for municipal boroughs are authorized by s. 4 of the Act 22 & 23 Vict. c. 56. and s. 6 of 24 and 25 Vict. c. 75., the town councils being empowered to exercise these and other duties relating to weights and measures *solely within their respective boroughs.*

2. Under s. 25 of the Act 5 & 6 Will. 4. c. 63., by which Act the present system of inspection of weights and measures was first established, Inspectors are to be appointed by the local authorities to act *within the limits of their respective jurisdiction*, and the powers of such Inspectors are to be exercised *within the limits exclusively.*

3. It follows that the appointment of the Town Council of Dover of an Inspector for the borough of Margate, and the acting as such until recently, as stated in Mr. Brooks' letter, and involving the use of the Dover standards within the borough of Margate, were contrary to the provisions of the weights and measures laws.

4. There appears, however, to be no illegality in the same person being appointed Inspector for two adjacent boroughs, *if duly appointed by the competent authorities in each borough;*

5. Nor in the same set of standards being used by such Inspector in the two boroughs, *if duly provided for such two boroughs.*

6. As, however, there is no precedent of this Department having verified one set of standards for two distinct local jurisdictions, I have felt it my duty to apply to the Board of Trade for instructions for my guidance, and have referred their Lordships to s. 11 of the Standards Act of 1866, empowering the Warden of the Standards to conduct all such verifications, &c. as the Board of Trade from time to time may authorize or direct; at the same time stating my opinion that the application is a reasonable one, its object being to effect legally what has hitherto been done illegally.

Their Lordships have accordingly been pleased to authorize me to verify and stamp the standards in question for the two boroughs, and I shall be prepared to do so upon receiving the usual requisition, duly signed by the proper officers of the two boroughs, and the standards duly adjusted as belonging to and provided for the two boroughs.

I am, &c.
H. W. Chisholm,
Warden of the Standards.

Messrs. De Grave & Co.,
59, St. Martin-le-Grand.

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26. Use of surplus standards sub-standards in Ireland.

26. *Legality of use of surplus copies of the Imperial Standards as Sub-standards in Ireland.—From Messrs. De Grave & Co.*

Sir, 59, St. Martin-le-Grand, March 23, 1868.

We enclose herewith a letter from the secretary to the grand jury of the county of Wexford, and should feel obliged if you would inform us whether these standards,

Appendix VI.—*continued.*

having been originally issued as imperial, can now be used as sub-standards, as we have a doubt upon the subject. The standards referred to are,—

A set of avoirdupois weights belonging - - -	}	to No. 764	indenture.
Gallon, pint, and yard measures - - -	}	„ 763	„
Half-gallon, quart, and half-pint, down - - -	}	„ 96	„

Please to return the enclosure.

We remain, &c.

De Grave, Short, and Fanner.

H. W. Chisholm, Esq.,
Warden of the Standards,
Old Palace Yard.

Enclosure.—*Secretary to Grand Jury, County Wexford, to Messrs. De Grave.*

Dear Sirs, Wexford, March 13, 1868.

I beg to enclose cheque for amount of your account by direction of the grand jury at the late assizes. The grand jury are satisfied with the one complete set of weights and measures you have sent over, which constitute the standard set for the county. The sub-standards can be adjusted and compared with these by the constabulary, to whom the grand jury desire to leave the further action in the matter. It will be, therefore, only necessary that you should send to me the weights and measures you have, as enumerated in your letter of the 22nd February.

For the information of the Royal Irish constabulary, I am desired to ask you what you would charge for putting those weights and measures into perfect order without having them verified at the Exchequer. They can be verified after comparison with the standards here, and the Royal Irish constabulary think they have enough measures here to make up (along with those you now have) the requisite number of *sub*-standards.

I am, &c.

Henry E. Wynne,
Secretary to Grand Jury,
Messrs. De Grave & Co. County Wexford.

Warden of the Standards to Messrs. De Grave, in reply.

Gentlemen, 7, Old Palace Yard, March 24, 1868.

Under the existing weights and measures laws and official regulations I am not empowered or authorized to decide upon the legal construction of the provisions of law which affect the action of the Inspectors of Weights and Measures or the sub-standards in Ireland.

I may, however, refer you to the two Acts which regulate the weights and measures of Ireland, passed in 1860 and 1862, by which the grand jury of each county of Ireland is required to provide "one complete set of copies of the "imperial standards," and as many copies of them in iron or other sufficient material as shall be necessary or as is therein provided.

It does not appear to me that there is any provision of law to preclude the grand jury from using, as sub-standards, any surplus copies of the imperial standards beyond the set with which they are required to be provided. At any rate, this is not a matter with which this Department is called upon to interfere; it rests with the grand jury, or with the local jurisdiction that may be called upon to pronounce upon the legality of their acts.

Under these circumstances there does not seem to be any impediment to your adjusting the weights and measures in question, in order that they may be used as sub-standards. But as they are no longer required as *copies of the imperial standards*, it will be proper that the official stamp should be cancelled. I have, therefore, to request that you will transmit them to this department for that purpose, which shall be effected without injury to them.

The letter from the Secretary of the Grand Jury of County Wexford is herewith enclosed.

I am, &c.

H. W. Chisholm,
Messrs. De Grave & Co., Warden of the Standards.
59, St. Martin-le-Grand.

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27. Question of legality of 3½ lb. weights.

27. *Legality of 3½ lbs., &c. weights.*

Extract of letter from Chief Inspector of Weights and Measures at Sheffield to Messrs. De Grave.

Sheffield, April 3, 1868.

I have also to request you to inform me whether there has been any recent decision in any of the Superior Courts with respect to the *illegality* of such *weights* as 3½ *lbs.*, 3 *lbs.*, 5 *lbs.*, &c., the Weights and Measures Act (5 & 6 Will. 4. c. 63.) being ambiguously worded, some of our magistrates decline to convict for such weights simply because they do not correspond in denomination with the standard weights in the custody of the Warden of the Standards. I have, therefore, to act very cautiously in the matter. But, inasmuch as I am convinced that I am not *bound to stamp* such weights, I decline to do so; if I find any such weights in use, I lay an information against the parties for using *unstamped* weights; if I find them light, I seize them, and summon the parties for having *unjust weights*. I have, however, this difficulty, the court leet inspectors, who had jurisdiction here before the town council appointed inspectors in 1862, used to stamp 10 lbs., 5 lbs., 3½ lbs., and 2½ lbs. weights, and a few of those weights are still in use, which cannot properly be said to be either "unjust" or "unstamped." The other day a shopkeeper made a demand at the office to have his 3½ lbs. weight stamped, and threatened legal proceedings when the assistant inspector in charge declined to stamp it.

Any definite information on the subject will greatly oblige.

Yours, &c.

John Parkin,
Chief Inspector of Weights and Measures,
Messrs. De Grave & Co. Sheffield.

Messrs. De Grave and Co. to the Warden of the Standards, enclosing the preceding application.

59, St. Martin-le-Grand, London, E.C.,
Sir, April 16, 1868.

We herewith enclose a letter from the chief Inspector of Weights and Measures for the borough of Sheffield, in which he wishes for information as to what weights he is legally bound to stamp. As this is a question we are unable to answer at present, we should feel obliged if you would inform us what answer we are to make.

We remain, &c.

De Grave, Short, and Fanner.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards to Messrs. De Grave, in reply.

Gentlemen, 7, Old Palace Yard, April 17, 1868.

As I have on former occasions remarked to you, any opinion given by me, as Warden of the Standards, upon the legal construction of the Weights and Measures Acts, and relating to the duties of the local Inspectors, such as that brought under my notice by your letter of yesterday's date, carries with it no legal authority, nor is it within the limits of my official functions, as at present constituted. I shall, however, endeavour to give you such information as lies in my power for the assistance and guidance of the chief Inspector of Sheffield.

The principal point raised, whether weights and measures of other denominations than those for which specific legal standards are provided, are legal, is a large and important question, and it is one on which there appears to be a considerable difference of opinion.

The provisions of law applicable to the question are contained in the Act 5 & 6 Will. 4. c. 63., under which the present system of inspection of weights and measures was established, and they are as follows:—

S. 21 enacts that all weights and measures used for buying and selling, &c., "shall be examined and compared "*with one or more of the copies* of the imperial standard "weights and measures provided under the authority of "this Act for the purpose of comparison by such Inspectors, "who shall stamp, in such manner as best to prevent "fraud, such weights and measures when so examined "and compared, if found to correspond with such copies; "and the fees for such examination, comparison, and "stamping shall be according to the scale contained in "the schedule to this Act annexed; and every person "who shall use any weight or measure other than those "authorized by this Act, *or some aliquot part thereof*, "*as herein-before described*, or which has not been so "stamped as aforesaid," &c., shall on conviction, forfeit, &c.

The enactment in the first part of this clause, that all weights and measures shall be compared *with one or more copies* of the standards, appears to render legal the weights and measures therein described, when duly stamped, although they may be of other denominations than the standards; and the further enactment in this clause appears to limit the number of such weights and measures as may be duly stamped, being of other denominations than the standards, to *some aliquot part thereof as herein-before described*.

In order, therefore, to ascertain the full construction of

Appendix VI.—*continued.*

s. 21, it becomes necessary to examine the previous clauses of the Act, and it will be found that no other weight or measure, being the aliquot part of any imperial standard weight or measure, is described or authorized to be used except in ss. 6 and 8, which apply to *measures of capacity and lineal measures*. It may be sufficient to refer to s. 6, which prohibits the use of "any denomination of measure "other than one of the imperial measures or some multiple "or some aliquot part, such as half, the quarter, the "eighth, the sixteenth, or the thirty-second parts thereof."

The proviso in s. 11 appears to sanction *bargains, sales, and contracts* made by any multiple or aliquot part of the pound weight, but not to refer to the use of any weight being a multiple or aliquot part of the pound weight other than the official standards. This construction is consistent with the proviso in s. 21, that nothing therein contained "shall extend to require any single weight above 56 lbs. "to be inspected and stamped, such weight of 56 lbs. being "the greatest of the imperial standards deposited in the "Exchequer." It is clear that this reason is equally applicable against inspecting and stamping all weights of other denominations than the official standards.

This construction appears also to be confirmed by the scale of fees annexed to the Act, and which fees are to be taken by the Inspectors for examining, comparing, and stamping weights and measures. There is no specified fee for any *weight** of other denomination than the official standard; whilst *there is a specified fee for stamping measures of five and three gallons respectively, for which measures of capacity no official standard has been by law established.*

There appears to some ambiguity in the subsequent provision contained in s. 29, by which any Inspector who shall stamp any weight or measure without duly verifying "the same *with a copy of the imperial standard*" is made liable to a penalty; and this provision has been held to restrain an Inspector from stamping any weight or measure other than those corresponding with the imperial standards. But this penalty is obviously applicable to the offence of stamping a weight or measure without duly verifying it, and not to the act of verifying a measure with more than one copy of the standards, else how could an Inspector verify and stamp a five or three gallon measure? It does not appear to me, therefore, that there is any real contradiction in the provisions of the clauses 21 and 29, as has been frequently alleged.

The most authoritative judicial decision upon the point in question is mentioned in Messrs. Nicholl & Fowler's Handy Book of Weights and Measures, p. 84, in the case of List v. Clerk, tried on appeal to the Lord Justice General, the Lord Justice Clerk, and the Lords Commissioners of Justiciary in Scotland, (to which place the Act extends) on 1st December 1845. All the judges were of opinion that the Inspector is not required to stamp, and in fact is not justified in stamping a 3½ lbs. weight. One of the judges, Lord Cockburn, in giving his opinion, said that if the view taken by the appellant was correct, the result would be that every weight and measure, the elements of which could be resolved by any regular proportion of the standards, no matter by what difficulty, tediousness, and complication, of process whether by multiplication or division, would be entitled to be stamped.

A decision is also quoted as given by Mr. D. Maule, a barrister of high standing and stipendiary magistrate of Manchester. He, after taking time to consider, dismissed a complaint, in June 1846, against the Inspector for refusing to stamp a 3 lbs. weight, giving his opinion that the Legislature never intended to allow the use of such weights, or any weight being intermediary of the standards.

I am aware that in many places 3½ lbs. weights are stamped by Inspectors and are in use, being found very convenient and serviceable as flour weights. There are even several districts in Ireland where 3½ lbs. sub-standard weights are furnished to the Inspectors of Weights and Measures for comparing and stamping such weights. I am nevertheless of opinion that both sub-standards and weights of 3½ lbs. are illegal. It may be added, that the question of establishing a 3½ lbs. standard weight, as an aliquot part of the 14 lbs. or stone and as a flour weight, has been brought under the consideration of the Standards Commission by the magistrates of the county of Kent, the application showing that in the opinion of these magistrates the use of a 3½ lbs. weight is at present unauthorized by law.

It has been suggested to me by the Astronomer Royal, who concurs with me in the opinion of the illegality of 3½ lbs. weight, that the proper course for persons who require this weight would be to have a composite weight of 3½ lbs. in a *nest* of legal weights of 2 lbs., 1 lb., and ½ lb., each weight being verified and stamped separately.

I think, therefore, that the Inspector of Sheffield will do well,—

1. To continue to refuse to stamp all weights of other denominations than the standards; but he should be informed that there is an official standard 10 lbs. weight.

2. And to continue to seize all unstamped and unjust weights.

3. That as the magistrates have declined to convict simply for using weights of other denominations than the standards, he will exercise a wise discretion in not interfering with *stamped* 5 lbs., 3½ lbs., &c. weights, if they are not otherwise unjust. It is, however, to be regretted that such weights should ever have had a *quasi* legality given to them by the stamp of the Inspector.

I am, &c.
H. W. Chisholm,
Warden of the Standards.

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28. *Verification, &c. of Weighbridges.*

28. Verification, &c. of weighbridges.

Extract of letter from Colonel Le Couteur, Viscount of Jersey, to the Warden of the Standards.

Belle Vue, Jersey, April 21, 1868.

We have three weighbridges here, one in each of our seaports, I have occasionally examined them, but have not found them perfect, and it might not be quite convenient to confiscate a weighbridge.

I confess that I am still in the dark as to the certainty of their working. I possess a very neat little model weighbridge which I bought in Paris some years back, that will weigh decimally very truly, one ounce will weigh ten ounces, and one pound ten pounds, but the cart load weighbridges are not equally accurate.

A maker to whom I wrote on the subject either could not or would not give me his rule.

Could you oblige me without much inconvenience with the information, or tell me what book to get to inform me.

I am, &c.
J. Le Couteur.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards, in reply.

My dear Sir, 7, Old Palace Yard, April 23, 1868.

The question of weighbridges is one upon which I am sorry to say I cannot at present give you any official information, as we have never had anything to do with them in the Standards Department. It is one, however, upon which the Standards Commission will probably require some information to be laid before them, in which case we shall endeavour to find a properly qualified witness to give his evidence before the Commission. I shall hope on a future occasion to send you information upon the subject that may be of use to you.

The French weighing machine that you mention, the *balance-bascule*, is one that I propose to bring under the notice of the Standards Commission, and I have already requested Messrs. Nicholl and Fowler to supply one to this Department for that purpose.

With respect to seizing unjust balances or weighing machines of any description, our law is at present not satisfactory. In Great Britain, under s. 28 of the Act 5 & 6 Will. 4. c. 63., it is generally considered that although persons possessing or using such *in any premises*, for the purposes of sale or transport, are liable to a penalty not exceeding *5l.*, the unjust or defective balances or weighing machines themselves are not liable to seizure and forfeiture. The legal construction of the clause is, however, doubtful.*

* S. 28 empowers justices and magistrates to authorize Inspectors to enter shops and premises, "and there to examine all weights, measures, "steelyards, or other weighing machines, and to compare and try the "same with the copies of the Imperial standard weights and measures "required or authorized to be provided under this Act; and if upon "such examination it shall appear that the said weights or measures "are light or otherwise unjust, the same shall be liable to be seized and "forfeited; and the person or persons in whose possession the same "shall be found shall, on conviction, forfeit a sum not exceeding five "pounds; and any person who shall have in his or her possession a "steelyard, or other weighing machine, which shall on examination be "found incorrect or otherwise unjust, or who shall neglect or refuse to "produce for such examination, when thereto required, all weights, "measures, steelyards, or other weighing machines which shall be in "his or her possession, or shall otherwise obstruct or hinder such "examination, shall be liable to a like penalty." The question is whether the words "a like penalty" apply to the penalty or fine of 20*l.* only, or include also seizure and forfeiture of incorrect or unjust weighing machines. No judicial decision appears to have been given upon this point. As it is the practice to put the strictest legal construction upon penal clauses, it is generally considered by the Inspectors that the clause authorizes the infliction of a fine only, and not seizure and forfeiture of the weighing machines.

Appendix VI.—*continued.*

Under s. 3 of the Act 22 & 23 Vict. c. 56. such balances, &c., *in the public streets and places* are liable to both seizure and forfeiture, persons using or possessing them being liable to a similar fine.

In *Ireland*, under the Act of 1862, unjust or fraudulent balances, &c. are subject to seizure and forfeiture, both in shops and in open places.

The Act 5 & 6 Will. 4. c. 63. is that under which the present system of inspection of weights is generally established throughout the kingdom, although additional and special provisions relating to Ireland are contained in the Acts of 1860 and 1862. The system previously in force was in pursuance of two Acts, 35 Geo. 3. c. 102. and 55 Geo. 3. c. 43., authorizing the appointment of examiners of weights and measures, who were empowered to seize and confiscate unjust balances, &c. These Acts are still unrepealed. Similar powers are given to Inspectors under several Local Acts; for instance, at Liverpool by the Local Act 7 Geo. 4. c. 57. In this Act there is a special clause by which masters or keepers of weighing machines practising fraud are liable to a penalty of 20*l.*

No instance of a large weighing machine being seized and forfeited has ever come to my knowledge.

I send herewith a copy of a Parliamentary Paper of 1861, No. 153, which will give you some insight into the practice of convicting for false and unjust weights, measures, and balances in Great Britain.

There is an article in Rees' Encyclopædia on the construction of weighbridges, which may give you some information respecting them. On one occasion an application was made to this Department to verify and stamp a number of 56 lbs. weights (the largest of our standard weights being 56 lbs.) for the purpose of testing weighbridges.

The fact is that at present there is much need of authoritative instructions being issued to all local Inspectors of Weights and Measures for the due performance of their duties, and in order to ensure uniformity of action in accordance with the law. This is a subject specially referred to the Standards Commission for their consideration.

Yours, &c.
H. W. CHISHOLM,
Warden of the Standards.

Col. Le Couteur,
&c. &c.

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29. Charge for restamping weights and measures.

29. *Restamping and Charge by Inspector on comparison of Weights and Measures brought to him, and found correct, having been previously stamped.*

Secretary of Headcorn Trade Society to Warden of the Standards.

Bearsted Division of the Headcorn Trade Society
Headcorn, Staplehurst, April 27, 1868.

SIR,

IN the interests of the above society I am desired to ask your kindness to give us information on the following statement.

Certain places are appointed by the county magistrates in this division, at which the Inspector of Weights and Measures attends once a year for the purpose of proving and stamping all weights brought to him, such being correct, which has been done some years.

But at his visitation a few weeks past he, in addition to this, restamped *every* weight brought to him, most of which were already stamped, and made a charge to each person bringing them, *notwithstanding many protests against it*, as being contrary to Act Will. 4. *Clause* 27.

May I ask you, Sir, to kindly answer if the Inspector has in this case *exceeded* his duty.

I am, &c.
THOS. W. BURDEN,
Secretary.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards, in reply.

7, Old Palace Yard, April 28, 1868.

SIR,

IT is no part of my official duties to pronounce an authoritative opinion upon the legal construction of the Weights and Measures Acts, as to whether an Inspector has exceeded his duty in the case stated in your letter of yesterday's date. This function devolves upon the local magistrates and justices, before whom any Inspector who commits a breach of his duty is liable to be brought, and to a fine, not exceeding 5*l.*, if guilty, under s. 24 of the Act 5 & 6 Will. 4. c. 63.

But it is by no means clear that the Inspector has exceeded his duty in restamping the weights, and charging the fees.

Sect. 27, to which you refer, was introduced for a specific purpose, to prevent the necessity of restamping weights used in one district of inspection, which had been stamped in another in order to render them legal, and under the following circumstances.

On 29th January 1835 a tradesman at Bilston in the county of Stafford complained to this Department that, having bought weights at Birmingham, in the county of Warwick, and stamped by the Inspector there, he was called upon by the county Inspector of Staffordshire to have them restamped before they could be legally used in Staffordshire.

The case turned upon the legal construction of s. 14 of 4 & 5 Will. 4. c. 49., and upon a representation from this Department to the Treasury, the opinion of the law officers of the Crown was taken, which was to the effect that the language of the Act was by no means precise, but they were inclined to think that weights and measures stamed by the Inspector of one county could not be sold or used in another county without being stamped by the Inspector for such second county.

Sect. 27 of the Act of 1835 was consequently introduced to obviate the great inconvenience and hardship to the public which would result from every weight and measure being illegal in any other district of inspection than that in which it was stamped; and it provides that weights and measures, once stamped, need not be restamped, although they are used in another locality, but shall be legal unless found to be defective or unjust.

There is, therefore, no necessity for bringing any such weight and measure to be compared and verified by the Inspector.

But if they are brought, he appears to be not only justified but required by the provision of s. 24 to stamp them, if found correct, and to make a minute of the comparisons, as well as to account for the fees.

I understand that the actual practice with regard to weights and measures previously stamped, and recompared and found correct by the Inspector, varies in different localities, some Inspectors making no charge, others always making a charge. This want of uniformity is not satisfactory. One of the points referred to the Standards Commission is to consider and report how far the power and duties of this Department should be extended to the furnishing authoritative instructions to the local Inspectors, with the view of securing unity of action. It will be my duty, therefore, to bring the subject of this letter under the notice of the Commission.

I am not aware of any judicial decision having been given upon the point in question. But you will see that it is in the power of any one who feels aggrieved to obtain a decision by the magistrates.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

Thos. W. Burden, Esq.,
Secretary of the Bearsted Division
of the Headcorn Trade Society,
Headcorn, Staplehurst.

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30. Legality of ¼ gill measure.

30. *Legality of Quarter Gill Measure.*

Town Clerk of Warrington to Warden of the Standards.

Town Clerk's Office, Warrington,
May 7, 1868.

SIR,

I SHOULD feel obliged by your informing me whether there is any standard measure for a quarter of a gill, and if not, if the Inspector of Weights and Measures would be justified in stamping such measures, or whether he ought to seize them.

I am, &c.
THOS. GEDDES,
Town Clerk.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards, in reply.

7, Old Palace Yard, May 8, 1868.

SIR,

IN answer to your first question, I have to inform you that there is no standard measure of a quarter of a gill.

The second question is purely a legal one, its answer being dependent upon the legal construction of the provisions of the Weights and Measures Act, 5 & 6 Will. 4. c. 63. It is not within the limits of my official functions, as at present constituted, to give any authoritative opinion upon the construction of this Act, so far as it relates to the duties of the local Inspectors; I shall, however, give you such information as lies in my power.

Appendix VI.—*continued.*

It is quite clear that it is the duty of an Inspector to seize any metallic weight or measure that is *unstamped*, whether of the same denomination as any of the standards or not. Whether he is justified or not in *stamping* a quarter gill measure may be a doubtful point. In several localities, both of Great Britain and Ireland, the Inspectors do stamp quarter gill measures. In by far the majority of places, the Inspectors refuse to stamp weights and measures of other denomination than the standards.

The question turns on the construction of s. 21, which enacts that the Inspector shall compare weights and measures with "*one or more*" copies of the standards, and allowing the use of weights and measures authorized by the Act, "*or some aliquot part thereof, as herein-before described.*" There is no mention of any aliquot part of a standard weight or measure in any other clause except s. 6, which refers to *measures of capacity and lineal measures only*.

I think therefore, that whilst an Inspector is *not* justified in stamping a *weight* of other denomination than one of the standards, he *may be* justified in stamping *a quarter gill measure*, if found correct upon comparing it with a half gill, the smallest standard measure of capacity, by taking twice its contents.

The whole question is an important one, and it is most unsatisfactory that the law with respect to it should be so doubtful. I have myself brought the question under the consideration of the Standards Commission and of the Government, and I trust that on the first legislation upon the subject, the law will be made clear and precise.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

Thos. Geddes, Esq.,
Town Clerk, Warrington.

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31. As to fees for official verifications.

31. *Inquiry as to Fees for official stamping of Weights and Measures.*

Messrs. Fraser and McPherson to the Board of Trade.

SIR, Forres, March 23, 1868.

WE shall feel obliged by your informing us on receipt if there are any fees or charges in passing and stamping weights and measures at the Board of Trade, and if so what they are.

We are, &c.
FRASER AND MCPHERSON.

T. H. Farrer, Esq.,
Secretary of the Board of Trade.

(Referred by Mr. Farrer to the Warden of the Standards.)

Remarks by the Warden of the Standards.

Under s. 9 of the Standards Act, 1866, 29 & 30 Vict. c. 82., all fees and stamp duty payable on the verification or re-verification of any *standard* weight or measure, were abolished from the passing of the Act (August 6, 1866).

But the application of Messrs. Fraser and McPherson appears to refer, not to the verification and stamping at the Standards Department of any *standard*, but of commercial weights and measures; and these, under the existing weights and measures laws, are to be compared with the copies of the official standards in the hands of the local Inspectors, and stamped if found correct *by such Inspectors*. The fees payable on such comparison and stamping are specified in a schedule annexed to the Act 5 & 6 Will. 4. c. 63.

Under the existing law and regulations, no weights and measures other than *copies of the imperial standards*, for the use of local authorities possessed of legal jurisdiction, or the use of Public Departments, and to be delivered to the custody of a responsible local or public officer, are verified and stamped in the Standards Department.

H. W. CHISHOLM,
Warden.

Standards Department,
March 26, 1868.

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32. Petition of Inspectors for superannuation allowances.

32. *Petition of Inspectors of Weights and Measures for Retiring Pensions.*

Station for Stamping Weights and Measures,
District No. 3, Middlesex,
41, Museum Street, Bloomsbury, June 25, 1868.

SIR,

I BEG leave to forward you the enclosed petition from the Inspectors of Weights and Measures for the counties of Middlesex, Surrey, and Kent, with the request that you will be pleased to lay the same before the Royal Commissioners appointed to inquire into the Standard Weights and Measures.

I have, &c.
EDWARD MORRISON,
Inspector, District 3, Middlesex.

Henry J. Chaney, Esq.,
Secretary to the Standards Commission,
7, Old Palace Yard, Westminster.

To the Right Honourable the Royal Commissioners appointed to inquire into the Standard Weights and Measures.

The humble Petition of the Inspectors of Weights and Measures for the counties of Middlesex, Surrey, and Kent,

SHEWETH,

THAT in the Acts of Parliament made relating to weights and measures and the due performance thereof no provision is made for superannuating or otherwise providing for the Inspectors who from length of service, failing health, or advanced age, are compelled to relinquish the duties of their office.

Your petitioners beg to state that Her Majesty's Justices of the Peace of counties are the authorities in whom is vested the appointment of Inspectors, but no power is given to the Justices to grant pensions to retiring officers, notwithstanding their knowledge of the officers' zeal and assiduity in which they may have performed their duties during a period of very many years.

Your petitioners would solicit attention to the painful position in which officers and their families are placed when after a lengthened service, they having become incapacitated through infirmity and old age, are compelled to retire from their office without any provision being made for their declining years.

Your petitioners very respectfully mention the following cases which have actually occurred.

Mr. Farmer, Inspector of Weights and Measures for the Blackheath district of the county of Kent, who after serving in the above capacity for a period of 51 years, was called upon to resign in consequence of his age and infirmity, without a pension.

Mr. Stanford was Inspector for the B. district of the county of Surrey for a period of 30 years, when through the infirmities consequent of his age, was compelled to resign without a pension.

Mr. Cook having served the office of Inspector for the city of Westminster for very many years, died in November 1866, at the advanced age of 86 years.

Your petitioners would therefore most respectfully venture to place the above particulars before you, and earnestly solicit that you will give the subject your favourable consideration, and that it will please you to recommend in your Report to Parliament that when any Bill relating to Weights and Measures may be brought into Parliament sufficient power may be given to the proper authorities to enable them to grant pensions to Inspectors who from advanced age, infirmity, length of service, or good conduct have become entitled to receive provision on their retirement from office.

And your petitioners will ever pray, &c.

JOHN WRIGHT,	Inspector,	District	No. 1	Middlesex.
DAVID FAULKNER,	do.	do.	„ 2	
EDWARD MORRISON,	do.	do.	„ 3	
JAMES GREGG,	do.	do.	„ 4	
W. C. BUSSELL,	do.	City of Westminster.		
JAMES DAWS,	do.	District	A.E.	Surrey.
JAMES STRUGNELL,	do.	do.	A.W.	
WILLIAM COOK,	do.	do.	B.	
JOHN DART,	do.	do.	C.	
EDWIN C. TOWNSEND,	do.	do.	No. 3	Kent.
WILLIAM WILLSON,	do.	do.	„ 17	
RICHARD HAMLIN,	do.	do.	„ 18	
PHILIP JAMES,	do.	do.	„ 19	

June 25, 1868.

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33. Object of official indenture of verification.

33. *Object of official Indenture of verification of Local Standards.*

Town Clerk of Dundee to Warden of the Standards.

SIR, Dundee, July 27, 1868.

THE Town Council of Dundee purchased under the Act 5 & 6 Will. 4. c. 63., soon after the Act passed, certain standard measures.

Appendix VI.—*continued.*

These were recently sent, on your recommendation, to Messrs. De Grave and Co., of 59, St. Martin-le-Grand, in order to their being verified as desired by the said Act.

These gentlemen tell me the standards, or rather the copies, are ready, but they sent me your letter to them, dated 20th inst., in reference to indentures, or if the old one lost, a declaration of the loss.

I am ignorant what this means. I do not know of any indentures ever having been entered into in reference to these copies, and I have sought in vain in the Act for information.

Will you be so good as to explain what indentures are referred to, and why they are wanted.

The delay in the verification is causing inquiry and dissatisfaction.

I am, &c.
ALEX. KERR,
Town Clerk.

The Warden of the Standards,
7, Old Palace Yard.

Warden of the Standards, in reply.

SIR, 7, Old Palace Yard, July 28, 1868.

IT is never the practice of this Department to recommend any particular tradesman for the adjustment of local standards. In my letter to you of 23rd April, I merely mentioned the name of Messrs. De Grave as having been last employed for the burgh of Dundee, and with a view to your own convenience in selecting your agent.

There has been no delay in this Department in the verification of the Dundee standards. They were delivered here on the 16th July, together with many other sets, and their verification was completed on 22nd July.

The indenture is the official certificate of verification, a counterpart being kept in this Department, being the record of verification. The indenture is signed by the Chief of the Standards Department, and it is important to note that the counterpart is signed by the agent of the local authorities, who is appointed by a formal instrument deposited in the Department. It recites that the standards are "delivered to the custody of (*Alexander Kerr, Town "Clerk, Dundee*) and his successors in office, to be kept "and used according to the statutes in that case made "and provided." A legal trust is thus constituted, and accepted by the local officer who has the custody of the standards. The indenture of verification is frequently required to prove the legality of the local standards in a court of justice, and to obtain a conviction for false or defective weights and measures. It is in fact the only evidence which the local Inspector can produce to show that his weights and measures are legal secondary standards.

Under s. 5 of the Weights and Measures Act of 1835, *to which Act you refer in your letter of yesterday's date*, every new comparison or re-verification in the Standards Department is to be indorsed *upon the original indenture of verification*, the fees of verification only being payable.

According to the former practice of the Exchequer, a 3*l.* 10*s.* stamp was impressed upon the indenture, and was payable in addition to the fees for verification. These charges are now abolished under s. 9 of the Standards Act of 1866.

A new indenture was issued on 13th January 1835, with the Dundee standards, to be delivered to the custody of W. Banie, Esq., town clerk, the counterpart being signed by Mr. De Grave, as his agent. If this original document cannot be found a new indenture must be issued to complete the work of verification. But, as I have already stated, on 20th July, to Messrs. De Grave, upon their application for a new indenture, a statutory declaration is required to be made (5 & 6 Will. 4. c. 63.) of the loss of the original indenture before a new one can be issued.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

The Town Clerk,
Dundee.

34. Weights of iron cased in brass.

34. *Legality of Local Standard Weights made of molten iron cased in brass.*

Inspector of Weights and Measures, Birmingham, to Messrs. De Grave and Co.

Weights and Measures Office, Moor Street,
GENTLEMEN, Dec. 7, 1868.

WILL you kindly inform me by return of post if weights to be used as standards and made of molten iron cased with brass could be got stamped for that purpose at the Exchequer—Board of Trade, is it not, now?

I am, &c.
THOMAS HARRISON,
Chief Inspector of Weights and Measures,
Birmingham.

Messrs. De Grave, Short, and Fanner,
59, St. Martin-le-Grand.

(Referred by Messrs. De Grave to the Warden of the Standards, and specimens sent.)

Warden of the Standards, in reply.

GENTLEMEN, 7, Old Palace Yard, Dec. 8, 1868.

WITH reference to your letter of the Inspector of Birmingham, which you have transmitted to me, I have to state that under the existing regulations of this Department, no copy of the standard weights can be verified and stamped here, unless made of brass or gun metal, the only metals used for the official standards (with the exception of platinum for the more primary standards).

As the whole question of the construction and verification of standards is now under the consideration of the Standards Commission, I request that you will leave with me for the present the two specimen weights of molten iron cased in brass, in order that they may be inspected by the Commissioners, before whom I shall lay the application of the Inspector of Birmingham.

I am, &c.
H. W. CHISHOLM,
Warden of the Standards.

Messrs. De Grave & Co.

35. Legality of balance balls.

35. *Legality of Balances with balance balls permanently fixed.*

Mr. Gregory to the Board of Trade.

SIR, Swansea, December 12, 1868.

SEVERAL merchants and tradesmen of this borough have been summoned before the magistrates for using scales having attached to them a balance ball, which, on being unscrewed and contents taken out, were found against the purchasers.

Will you, Sir, be pleased to let me know whether such appendage, when made permanent to scales (*i.e.*, it cannot be unscrewed), is legal, as the magistrates have decided it is not.

I have, &c.
EDWIN GREGORY.

The Rt. Hon. John Bright, M.P.,
President of the Board of Trade.

(Referred to Mr. Chisholm for remarks.)

Remarks by Warden of Standards.

7, Old Palace Yard, December 16, 1868.

BALANCES are ordinarily made with an adjusting ball, the best balances having the ball upon a screw in the line of gravity of the centre of the beam. The ball being heavier on one side than on the other, any trifling inequality in the balance from time to time may be easily corrected by turning the ball on the screw. All the balances in the Standards Department are thus fitted with an adjusting brass ball, and this is found to be a very convenient mode of adjustment. Tradesmen's balances are more generally made with the ball suspended from the beam, inside the chains of one of the pans.

It is evident that the use of a balance ball is open to abuse and fraud. For instance, if a tradesman has the ball considerably heavier on one side than the other, or if he can adjust the balance at pleasure, he may make it weight against the purchaser, and it will thus be an unjust balance.

Under s. 28 of the Act 5 & 6 Will. 4. c. 63. an Inspector may lay an information against a tradesman possessing a balance which he finds upon examination to be "incorrect "or otherwise unjust." It rests with the magistrates in each case to decide upon the evidence whether the balance is incorrect or unjust. If any person is aggrieved with the decision he may appeal to a higher legal tribunal.

But the question of the legality of the balance ball has in fact been determined by a decision of a case in the Queen's Bench, before the Lord Chief Justice and Mr. Justice Blackburn on 2nd May last (Carr *v.* Stringer). I quote from the report in the *Times* of 2nd May.

This was an appeal against a conviction by the Justices at Tonbridge Wells. The ball was constructed with a neck

Appendix VI.—*continued.*

that could be unscrewed so as to allow shot to be placed inside, and it was hung upon the beam and easily removeable. The Inspector stated that by moving the ball or altering the quantity of shot, the balance might be made against the purchaser, and therefore unjust. The tradesman contended that the scales as they stood were correct and the ball was merely an instrument of adjustment.

The Court confirmed the conviction, on the ground that the public should be protected from frauds being committed by tradesmen, and that it could not be denied that the fact of having a loose ball, removeable at pleasure, and the removal of which made the scale against the purchaser, opened a wide door to fraud.

But they added,—"This case is very different from the "case of the London and North-western Railway *v.* Richards "(2 B. & S. 254), which has been relied on by the appel-"lant. There the adjuster was a part and parcel of the "machine, and as Mr. Justice Crompton says 'an integral "part' of it. Tradesmen may well take a warning from "this case, and take care to have scales which in them-"selves are correct. There seems to be no difficulty in "this being done, and we consider it our duty to protect "the public by condemning the practice of having balls "and shot as adjusters, which is found by the justices to "have been the case here."

It would appear from the judicial decision, that whilst on the one hand, balances with moveable balls, adjustable by tradesmen against the purchaser are unjust, and any tradesman possessing them is liable to a penalty, on the other hand, if the balance is duly adjusted and the ball properly *fixed* so as to be an "integral part of the balance," it should be deemed just and legal.

I am informed by Messrs. De Grave, that this is the view taken by the magistrates in the City of London, and that they now make it a practice to fix the ball securely with solder.

The subject of balances used by local Inspectors, and their inspection of commercial balances is one of the matters to be considered by the Standards Commission, and I propose to draw their attention to Mr. Gregory's letter and my remarks upon it.

H. W. Chisholm,
Warden of the Standards.

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36. Inspection of troy weights.

36. *Question of legality of inspection and seizure of defective Troy Weights.*

Inspector of Middlesex to Warden of the Standards.

Sir, Brentford, December 14, 1868.

As Inspector of Weights and Measures for No. 4 District of the county of Middlesex, I have laid informations against several persons for having in their possession illegal troy weights, the same being *light or heavy and not stamped*. The first case is for having 13 weights and two unjust balances. I have laid the first information under the 5 Geo. 4. c. 74. s. 16., for not having the said weights marked. I have also laid an information against the same person under the 5 & 6 Will. 4. c. 63. ss. 10. and 21., for not having the said weights stamped, also being light. I have also laid an information for two unjust balances. This being the first proceedings taken in the county of Middlesex respecting troy weights, and the persons the cases are against think I have acted illegally in taking the weights and intend to employ counsel to defend them. The cases will be heard on Saturday next. Sir, you will greatly oblige me if you will give me any information respecting any Act of Parliament I have not referred to, or any information you can give me respecting troy weights.

I am, &c.
James Gregg,
H. W. Chisholm, Esq. Inspector.

Warden of the Standards, in reply.

Sir, 7, Old Palace Yard, December 15, 1868.

In reply to your letter, I have to state that it appears to me that, so far as relates to counties in Great Britain, the general powers of Inspectors of Weights and Measures to examine and seize defective or illegal weights and measures and to examine balances and other weighing machines, all being used for the purposes of buying and selling or transport, as well as to lay information against persons using or possessing the same, are contained in ss. 17, 21, and 28 of 5 & 6 Will. 4. c. 63.

S. 17 requires *copies of the Imperial standards* to be provided for the use of the Inspectors. This provision is similar to that contained in s. 12 of 5 Geo. 4. c. 74., and both refer to the imperial standards deposited at the Exchequer, established as the legal standards by s. 11 of 5 Geo. 4. c. 74., and which are now constituted the standards of the Board of Trade under s. 1 and s. 3 of 29 & 30 Vict. c. 82.

The legal standard *weights* so established include both troy weights and avoirdupois weights, as stated in s. 4 of 5 Geo. 4. c. 74., and more especially troy weights, the troy pound having been the unit or only standard measure of weight, from whence all other weights were to be derived, computed, and ascertained, both under 5 Geo. 4. c. 74., and at the period of the passing of the 5 & 6 Will. 4. c. 63. in 1835.

Under 5 Geo. 4. c. 74. s. 9. all dealings by weight were to be made according to the weights established by the Act, there being no exclusive restriction either to troy weights or avoirdupois weights. But this restriction was imposed by s. 10 of 5 & 6 Will. 4. c. 63.

S. 16 of 5 Geo. 4. c. 74., to which you refer, merely authorized *temporarily* and under certain conditions the use of *existing* weights and measures not in conformity with the legal standards. But this temporary provision for permitting the use of the so-called *customary* weights and measures was *repealed* by s. 3. of 5 & 6 Will. 4. c. 63.

There is also another Act which has an important bearing upon the question, the 16 Vict. c. 29., passed 14th June 1853, for regulating the sales of bullion. The preamble recites the two Acts, 5 Geo. 4. c. 74. and 5 & 6 Will. 4. c. 63., and that weights which were multiples or decimal parts of the troy ounce were ordinarily used in sales of gold and silver; that none of those weights had hitherto been stamped, and doubts had arisen "whether under the "provisions of the said recited Acts, or one of them, such "weights are not liable to be seized as illegal, and con-"tracts and sales made thereby are not illegal and void," that it was expedient to remove such doubts, &c.

Accordingly, under s. 1 of this Act contracts and bargains made by such weights being multiples and decimal parts of the troy ounce were legalized, and under s. 2 legal standards of such weights were established, to be deposited at the Exchequer, as the Treasury should direct.

Under s. 3, persons using such weights being multiples or decimal parts of the troy pound or ounce, were not liable to have them seized or be convicted *until the expiration of* 15 *months from the passing of the Act, and s.* 4 *incorporated the Act with the* 5 *&* 6 Will. 4. *c.* 63., as if ss. 1 and 2 had formed part of it.

In pursuance of this Act, the existing series of decimal bullion standards was established under Treasury directions, dated 18th July 1853, and were to "be considered "supplementary to the standards at present in the Ex-"chequer."

It will be seen that doubts as to the legality of the use of troy weights not duly stamped, existed *only with respect to those weights for which there were no legal standards,* and that these doubts were intended to be removed by establishing legal standards under the Act of 1853.

I do not know of any further information upon the subject which I can furnish to you, except that contained in my letter of 17th April last, in reply to the Inspector at Sheffield, of which you have a copy.

I send for your information a list of the legal standards of weights and measures now in use in the Standards Department, including these decimal bullion standards.

I have to request that you will report to me the results of the proceedings referred to in your letter.

I have, &c.
H. W. Chisholm,
Mr. James Gregg, Warden of the Standards.
Inspector of Weights and Measures,
No. 4. Division, County of Middlesex.

Inspector of Middlesex, in continuation.

Sir, Brentford, December 23, 1868.

I beg to acknowledge the receipt of your letter respecting troy weights, giving me most important information. I beg to inform you the informations and summonses are signed for hearing on Saturday fortnight. I have, Sir, to return you my thanks for your kind instructions.

I remain, &c.
James Gregg,
Inspector of Weights and Measures.
H. W. Chisholm, Esq.,
Warden of Standards.

Appendix VI.—*continued.*

From Inspector of Middlesex, in continuation.

SIR, Hounslow, January 11, 1869.

I BEG to inform you the result of my proceedings on Saturday last respecting illegal troy weights. All the defendants were convicted and fined 20*s.* each, including costs. The defendants being old-established tradesmen, and never having been interfered with in using their own weights, made a great struggle to upset my proceedings. I was put on my wits' end to obtain convictions, the Acts of Parliament are so complicated. I will send you a newspaper of Saturday next that has the proceedings in.

I am, &c.

JAMES GREGG,
Inspector of Weights and Measures.

H. W. Chisholm, Esq.,
Warden of the Standards.

Further Remarks by the Warden of the Standards.

From the report of the proceedings contained in the "Middlesex County Times" of 16th January, forwarded to this Department by Mr. Gregg, it appears that the informations against the defendants were,—

1. For possessing illegal troy weights, not being duly stamped, and some not in accordance with the Board of Trade standards;
2. For possessing defective troy weights, being too light or too heavy;
3. For possessing unjust balances.

It was admitted that these were the first proceedings taken against persons for using illegal troy weights in the county of Middlesex.

The defendants were six in number, four being watchmakers and jewellers, and two pawnbrokers.

One of the defendants, a watchmaker and jeweller, alleged that he sold nothing by weight, and that there was no penalty for having unstamped weights and measures merely in possession, quoting Nicholl and Fowler's Handy-book of Weights and Measures, p. 90. He said that under the Bullion Act the magistrates had no jurisdiction, as watchmakers and jewellers did not sell their goods in the shape of bullion, but as manufactured articles, to which the Weights and Measures Act could not apply.

The Inspector stated in reply that in 1860 the defendant bought some silver plate from him, which weighed 12½ ozs. troy, and that when they came to a settlement, the defendant struck 2½ ozs. off the weight, saying that jewellers had no right to use their own weights.

The magistrates were of opinion that the Inspector of Weights and Measures had a right to deal with the weights of jewellers, and that their shops had not in law an immunity from his visits. As there was no valid defence they felt bound to inflict a fine, but as these were entirely novel proceedings the penalty would be merely nominal, so as to cover costs. They felt constrained to say that they would greatly prefer to have the point of law which had been raised decided by one of the superior courts, and would be glad to grant a case for that purpose.

All the defendants were entirely acquitted by the magistrates of any desire to transgress the law.

It was subsequently intimated that the defendants would not apply for a case, but that the points resisted would be taken up by the London jewellers.

In the report it is stated that "troy weights were not "inserted in the various Inspectors' indentures until "August in last year, when the weights were re-verified, "and the Warden of the Standards required that the "law referring to troy weights, so long apparently dormant "and inoperative, should be put in force."

This statement is inaccurate. Sets of troy weights, copies of the standards, were verified for each district of the County of Middlesex in 1834, and have been since re-verified, the last time in August last. Nor did the Warden of the Standards *require* the law to be put in force. He has no legal authority whatever over the local Inspectors of Weights and Measures. He has done nothing more than to furnish them from time to time, upon their application, with the fullest information in his power in relation to the discharge of their duties under the provisions of the Weights and Measures laws.

As to the point of law raised, that there is no penalty for the mere *possession* of unstamped weights, quoted from Nicholl and Fowler's Hand-book, in the first place a reference to that book will show that in the case quoted the magistrates *did* inflict a fine. It is the editor who contends that the conviction could not be supported, and he relies on s. 21 of 5 & 6 Will. 4. c. 21. But he overlooks the provisions of s. 28. This section is referred to in the case submitted to the law officers of the Crown on 7th July 1868 (p. 2.), as extending the penalties to the *possession* as well as to the use of unjust weights and measures, and the opinion of the law officers appears virtually to confirm this construction.

H. W. CHISHOLM,
Warden.

Standards Department,
18th January 1869.

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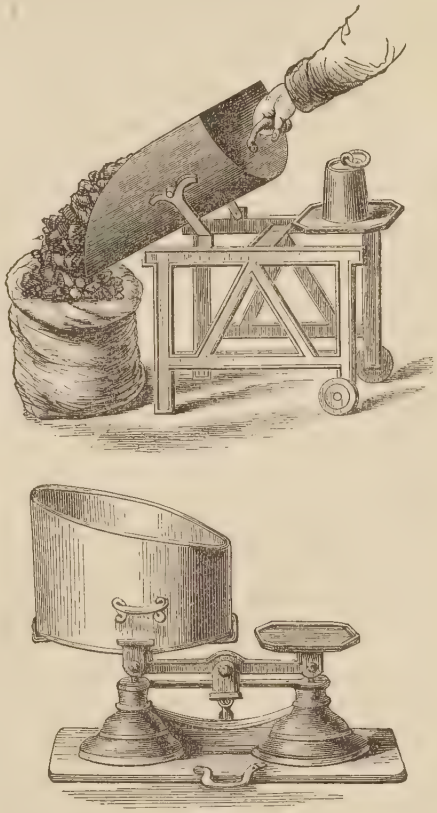
37. *Legality of Scales for weighing Coals.* 37. Legality of coal scales.

Messrs. De Grave & Co. to the Warden of the Standards.

59, St. Martin-le-Grand, London, E.C.,
DEAR SIR, December 15, 1868.

ONE of our customers who is a large coal dealer in Essex, has called upon us for advice as to what he is to do under these circumstances.

The Inspector of Weights and Measures in his district has objected to the manner in which we make the machines for weighing coals (sketch enclosed,.



He states that the machine must balance of itself before the tub which contains the coals is placed upon it; we wish to call your attention to the absurdity of this construction of the Act, as, if correct, every shopkeeper no matter of what trade, would have to have his scales or machines made to balance without any scale plate or pan, and then have a counterpoise weight for any scale or dish he might use for the purpose of weighing in. Although our customer intends to have his machines altered in accordance with the views of the Inspector, so as to save any unpleasantness, we do not believe the construction of the Inspector to be correct, as we consider in this case the tub to be part and parcel of the machine, and that the machine is not complete without it; besides that, if the Inspector should be held to be correct, it will open the way to worse frauds than those now perpetrated.

We remain, &c.

DE GRAVE, SHORT, and FANNER.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards, in reply.

GENTLEMEN, 7, Old Palace Yard, December 17, 1868.

I HAVE no doubt that the construction of the law taken by the Essex Inspector, as stated by you in your letter of 15th December (which I have just received) is incorrect.

Appendix VI.—*continued.*

That is to say, upon the assumption that the coal tub really constitutes the pan of the balance, and is not an addition to the ordinary pan. From your enclosed sketch I take this to be the fact.

The judges have agreed that to constitute a just balance, there must be no loose part; every part of the balance must be "an integral part" of it. In reference to this question, I transmit to you a copy of some remarks (see No. 35) made by me upon a case which has just been brought before the Board of Trade.

This is another of many cases of inconvenience and loss to the public which are now continually arising from the imperfections of the existing Weights and Measures laws, and from the want of uniformity, and frequently indeed of conformity to law, in the practice of the local Inspectors. It is to be hoped that these will soon be amended through the exertions of the Standards Commission.

In the meantime I can do no more than express to you my opinion, which carries with it no legal authority.

I am, &c.
H. W. Chisholm,
Warden of the Standards.

Messrs. De Grave & Co.

From Messrs. De Grave, in continuation.

59, St. Martin's-le-Grand, London, E.C.,
Dear Sir, April 19, 1869.

Referring to your letter of the 17th December 1868, we have to inform you that last week another of our customers in the same locality sent us two machines to alter, as the Inspector had objected to them; and as we have a strong opinion that by so doing we render ourselves liable to a penalty under the second section of 22 & 23 Vict. c. 56., we wrote to the Inspector, and enclose his reply, from which you will perceive that we are placed in a very embarrassing position. If we agree with the Inspector and alter the machines it involves considerable expense to our customer, and by making a counterpoise weight to balance the tub we are making an illegal weight; besides which, if our customer should remove to some other district, he would be, in all probability, summoned for having an illegal machine in his possession. On the other hand, if we refuse to alter the machine our customer will be summoned for having a machine in his possession, which, in the opinion of the Inspector, is illegal, and most likely be fined, as the magistrate would be perfectly unacquainted with the exact point in dispute, and support their officer. We have no doubt that should our customer refuse to alter his machine, and if convicted appeal to a superior court, that the Inspector's view could not be upheld; but looking at the result of the appeal in the "Balance Ball case," we could not recommend such a course, even without taking into consideration the expense involved; and we do not consider that the expense of proving an Inspector to be in the wrong in such a clear case as this should fall either on the manufacturers or tradesmen. We are, of course, well aware that at the present time there is no departmental control over the views of the Inspectors, however erroneous they may be; but we think that if in the present case a communication was sent direct from your department to the Inspector, it might cause him to give way.

We remain, &c.
De Grave, Short, and Fanner.

H. W. Chisholm, Esq.,
Warden of the Standards.

Enclosure from Essex Inspector.

Gentlemen, Police Station Witham, April 17, 1869.

I have to acknowledge the receipt of your letter of yesterday's date with reference to my insisting that "coal "machines should be made to balance without the tub for "weighing the coals in."

In reply to your question I have to acquaint you that my "opinion on the subject remains the same."

I am, &c.
J. May,
Superintendent Inspector of Weights and Measures.

Messrs. De Grave, Short, & Fanner,
59, St. Martin's-le-Grand,
City, London.

Warden of Standards, in reply.

Gentlemen, 7, Old Palace Yard, April 20, 1869.

In reply to your letter of yesterday's date, I can only repeat my opinion as expressed in my letter of 17th December last, that the coal weighing machine with its pan is not illegal, the pan being "an integral part of it, "and part and parcel of the machine" as laid down by Justice Crompton.

The machine with the pan should balance, and if the Inspector still seizes it, I should recommend your customer to have the case brought before a magistrate, and produce a copy of this letter, and of our previous correspondence upon this subject.

I cannot think that any magistrate would convict him under these circumstances.

It is not within my official duty to write to the Inspector on the subject, and I regret that I can do nothing more.

I am, &c.
Messrs. De Grave & Co., H. W. Chisholm.
59, St. Martin-le-Grand, E.C.

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38. *Complaint of conduct of Inspector at Tonbridge Wells.* 38. Complaint against inspector at Tonbridge Wells.

Mr. W. Baker to Standards Commission.

To the Honourable the Members of the Commission appointed to inquire into the law relating to Weights and Measures.

Gentlemen,

Myself and many other tradesmen of this place having been greatly annoyed, and in fact seriously injured, by the conduct of the Inspector here, I have taken the liberty of addressing you upon the subject of my grievance. I have always endeavoured to keep my weights and scales as correct as possible, well knowing that a public prosecution in a country town would be almost fatal to my interest; but, notwithstanding, I have found it *impossible* to avoid both summonses and fines. Here is a case in point. I use 24 weights and five pairs of scales, and the Inspector called upon me a few weeks ago, and pronounced them all correct, excepting a 4 lb. weight, which (he says) was two drachms light, and ¼ oz. weight unstamped, although correct in weight. For this offence *two* summonses were issued instead of one, and I was fined 1*s.* penalty in each case and 10*s.* 6*d.* costs in each case. I was thus mulcted of 23*s.* for the inappreciable deficiency of two drachms in 4 lbs., for I consider the unstamping of the other weight should be made the error of the maker or vendor of the weight. Again, last year the Inspector seized a quantity of enamelled weights, although quite correct in weight and stamped first at Westminster and then by the Inspector himself. For this I complained to the Home Office, and was told that they had no control over the Inspector.

These proceedings at law are extremely vexatious, as no honest respectable tradesman can protect himself against an Inspector, who is enabled by the imperfect state of the law to impart so much personal pique into the execution of his duties (being a maker and seller of scales, &c.), and whose *pecuniary advantage* is increased by the number of convictions he obtains, and who also can benefit his son (assistant to the magistrate's clerk) by the numerous *costs* derived from these prosecutions.

I trust, gentlemen, you will make *especial inquiry* into the execution and working of the law, as it now stands, with reference to *this town in particular*, as plenty of evidence will be cheerfully and thankfully given to prove the iniquitous and vexatious inflictions under the name of justice which are constantly occurring here.

Your most obedient servant,
Tonbridge Wells, Wm. Baker.
December 31, 1868.

Warden of the Standards, in reply.

Sir, 7, Old Palace Yard, January 2, 1869.

Your letter shall be duly laid before the Standards Commission.

It is important that they should receive such information as to the working of the weights and measures laws. The whole subject will shortly come under their consideration, and it will be then for them to determine whether it may be expedient to have special evidence respecting the inspection of weights and measures in Tonbridge Wells, as bearing upon the general question.

I am, &c.
H. W. Chisholm,
Warden of the Standards, and a Member
Mr. W. Baker, of the Standards Commission.
Tonbridge Wells.

Appendix VI.—*continued.*

Suggested improvements in inspection.

39. *Protection of the Public against false Weights and Measures.*

Mr. R. F. Littledale to Board of Trade.

10, Beresford Terrace, London, W.,
SIR, February 16, 1869.

IN the hope that the present Government may promote measures for the direct benefit of the poorer classes, I write as one long and closely connected with their needs to say that an effective Act for the punishment of false weights and measures is of primary necessity to protect those who cannot protect themselves. The small fines now levied, added to the little noise made in each case, are quite insufficient to deter dishonest traders, and an assimilation of English law to French on this head is most desirable. The chief deterrent feature of French law is that the convicted offender is not only fined (and sometimes imprisoned), but he is obliged to put up a placard in his shop window, stating the facts of his trial and sentence, and to pay for other placards to the same effect posted in the neighbourhood and for advertisement in the local journals.

There are men who habitually sell loaves of 1¾ lbs. as 2 lbs., and meat at the same rate, and who escape because either their debtors do not prosecute, or the profits of their knavery enables them to pay all fines with ease. Innocent traders might be protected from such as this by a regular inspection of weights and measures in every district, each shop being visited at least once in three months, and the wear and tear of weights rectified either by exchanging the old weights for new at a stated charge, or by weighting with additional lead in other cases. A very moderate tax indeed, say one shilling for inspection in each case, and two shillings more for exchange or rectification of weights necessary would make the scheme a source of a small revenue, not a loss to the Treasury, and would ensure a great public benefit.

Adulteration, equally prevalent, is a far more difficult matter to deal with, but short weight is easy of detection, of punishment, and of restraint.

I am, &c.
RICHARD F. LITTLEDALE.

The Right Hon. John Bright,
President of the Board of Trade.

Remarks of Warden of the Standards.

I have kept a copy of Mr. Littledale's letter to be laid before the Standards Commission, together with other similar evidence.

The question of a fee or tax for inspection or adjustment is one already brought under notice of the Commission, and will require some consideration.

H. W. CHISHOLM.

February 19, 1869.

40. Illegality of heaped measure.

40. *Illegality of Heaped Measure.*

Inspector of Middlesex to Warden of the Standards.

SIR, Brentford, February 19, 1869.

As Inspector of Weights and Measures for district No. 4 of the county of Middlesex, will you have the kindness to give me any information that may lay in your power respecting heaped measure.

I have sent you a newspaper of my proceedings, these having been the first proceedings after many years' caution to potato dealers that it was illegal to sell by heaped measure. I have had many complaints by the public complaining of not being able to buy potatoes by weight; when the potatoes run large one fills the body of a pottle measure, and instead of getting 3½ lbs. of potatoes, the purchaser only get 2½ lbs. The proceedings I took were as follows:—

I sent my assistant to purchase 3½ lbs. of potatoes, and to those persons that sold by weight he was to say he did not require the potatoes, he had only come to see if they weighed the potatoes, but all that sold by measure to pay for and bring to me.

I laid informations accordingly, and convictions took place, but as there is a doubt as to a person going and asking for a pottle of potatoes and the dealer supplies them, if he would be liable to the 40*s.* fine, I laid the informations under the 5 & 6 Will. 4. c. 63. s. 7., which states all bargains, sales, and contracts made by the heaped measure are declared null and void, and every person who shall sell any article by the heap measure is liable on conviction to a penalty not exceeding 40*s.*, but the 8th section differs very much from the 7th.

Sir, if there is any other Act of Parliament that refers to heap measure, will you have the kindness to inform me.

I am, &c.
JAMES GREGG.

H. W. Chisholm, Esq.,
Warden of the Standards.

Warden of the Standards, in reply.

SIR, 7, Old Palace Yard, March 1, 1869.

I REGRET that the pressure of important business relating to the Standards Commission has prevented me from replying sooner to your letter of the 19th instant.

With respect to heaped measure, the law appears to be clear. Under the law of 1825, 5 Geo. 4. c. 74., heaped measure was legalized and regulated by ss. 7, 8, and 9; but these provisions were repealed by an Act of 1834, 4 & 5 Will. 4. c. 49. after mature deliberation. The Bill when first introduced contained, in s. 4, further provisions for regulating heaped measure. But it was referred to a Select Committee, and amongst the evidence taken before them it was shown that the use of heaped measure was liable to fraud, and should be abolished and strike measure substituted. With regard to potatoes, evidence was given that they were altogether sold wholesale by weight and not by measure. The Bill was consequently amended by the Select Committee, and a new clause (4) inserted, abolishing heaped measure from and after 1st January 1835, declaring bargains, sales, &c. made by it null and void, but imposing no other penalty for its use.

Bill, No. 429 of 1834.
Bill, No. 464 of 1834.
Q. 514.

In the following year another Act was passed, the 5 & 6 Will. 4. c. 63., which repealed the previous Act of 1834, but re-enacted many of its provisions, and amongst them the abolishing of heaped measure. The re-enactments are contained in sections 7 and 8, to which your letter refers, and which are as follows:—

Heaped measure abolished.

VII. And whereas the heaped measure is liable to considerable variation; be it therefore enacted, that from and after the passing of this Act so much of the said recited Acts as relate to the heaped measure shall be and are hereby repealed, and the use of the heaped measure shall be abolished, and all bargains, sales, and contracts which shall be made after the passing of this Act by the heaped measure shall be null and void; and every person who shall sell any articles by the heaped measure shall, on conviction, be liable to a penalty not exceeding forty shillings for every such sale.

Articles heretofore sold by heaped measure how to be sold.

VIII. And whereas some articles heretofore sold by heaped measure are from their size and shape incapable of being stricken, and from their nature and quality may not be conveniently sold by weight; be it therefore enacted, that all such articles may henceforth be sold by a bushel measure corresponding in shape with the bushel prescribed in and by the said Act passed in the fifth year of the reign of His late Majesty for the sale of heaped measure, or by any multiple or by some aliquot part, such as the half, the quarter, or the eighth part thereof, filled in all parts as nearly to the level of the brim as the size and shape of the articles sold will admit: provided always, that nothing herein contained shall prevent the sale by weight of any article heretofore sold by heaped measure.

These clauses as they now stand were included in the original Bill, and were not altered during its passing through Parliament. But it is material to observe that the Bill was brought in to carry out the recommendations of a Select Committee appointed at an early period of the session to inquire into the provisions of the Act of 1834, and to consider what amendments would be calculated more fully and satisfactorily to effect its objects. The Committee heard evidence on the question of heaped measure. It was shown that under the provisions of the existing law there was no legal mode of measuring dry commodities except by the strike, and that in the case of many commodities, viz., lime, culm and coals, turnips, potatoes, &c., it was impracticable to measure them by strike measure. One of the members of the Committee upon the Bill of the previous year was examined, and whilst affirming that "stricken measure" would do more justice than heaped measure, suggested that with respect to those commodities that could not be stricken, it would be sufficient to use "level measure," that is to say, making them as level as practicable, but not using any implement as a strike. This suggestion was adopted by the Committee and embodied in s. 8 of 5 & 6 Will. 4. c. 63.

Bill, No. 292 of 1835.
Wallace, Q. 291.

I may add that, on a subsequent recommitment of the Bill, an additional clause was moved by Lord George Bentinck, to provide that culm and coals of every description should be sold by weight and not by measure. This clause was adopted, and stands as s. 9 of the Act.

Appendix VI.—*continued.*

It is evident, therefore, that under the existing law potatoes may be sold either by weight or by *level* measure as far as is practicable, but not by heaped measure.

In the cases reported in the Middlesex County Times of 12th December last, to which you refer, the offence of the first defendant, who sold potatoes by measure, consisted, as one of the magistrates stated, in not complying with the request of the customer, who asked for a certain weight of potatoes; and he was fined accordingly.

It is probably considered by a tradesman to be more advantageous to him to sell potatoes by measure than by weight; but this last case shows that all purchasers can protect themselves by asking for weight and not measure.

It appears, therefore, to be quite legal for a tradesman to sell a *peck* or any legal measure of potatoes, if asked for, by *level* measure. If he sells by a local or customary measure he is liable to a fine under s. 6 of 5 & 6 Will. 4. c. 63. Now the *pottle*, as such, is not a legal measure, but it is, I believe, generally considered to be equivalent to a half-gallon, or 3½ lbs. weight, and it is legal to sell half a gallon of potatoes by *level* measure.

I am, &c.
H. W. Chisholm,
To Mr. Gregg, Inspector, &c., Warden.
for Middlesex.

41. Frauds by short weight and measure.

41. *Frauds by Short Weight and Measure.*

From Inspector of Middlesex.

2, West Square, St. George's Road,
Sir, London, S., March 5, 1869.

I beg most respectfully to inform you that in consequence of having many complaints from persons respecting short weight and measure in goods bought from different tradesmen in my district, I have sent for articles to several shopkeepers, viz.: five butchers, five cheesemongers, five bakers, five grocers, five ham and beef sellers, five milkmen, and five victuallers; and on trying the articles bought I found three butchers, two cheesemongers, three bakers, two grocers, three ham and beef sellers, four milkmen, and one victualler selling goods deficient in weight or measure. I then made a visit to their places of business and examined their weights, measures, and machines, and found *one* only using a machine sufficiently incorrect to summons before the magistrates; four I cautioned, and the others I found correct. You will therefore please to observe that although their weights, scales, and machines are correct, they have other means of cheating the public.

I am, &c.
James Strugnell,
Inspector of Weights and Measures.
H. W. Chisholm, Esq.

42. Complaints of inspection at Whittlesford.

42. *Complaint of inefficient practice of stamping, and oppressive mode of inspection of Weights and Measures.*

From G. N. Maynard to the Board of Trade, March 6, 1869.

Sir, Whittlesford, near Cambridge, March 6, 1869.

I have read with great satisfaction your very just remarks in Parliament yesterday in relation to false weights and measures, and I beg to state that my experience fully confirms what you said on the subject.

I am a grocer and general dealer in this village, which is about seven miles from the town where weights, &c. have to be sent for inspection, and it is often a great expense and inconvenience to myself and others to be obliged to convey weights, &c. to a place with which it is difficult to communicate, and to be deprived of their use during the time they are detained there, and where, from the number of weights and measures which have to be adjusted during the day appointed, the work is necessarily done in a very hurried and imperfect manner. The weights have to be taken to the police station, where they are tried, and if found incorrect are sent to a common blacksmith, living at some distance, whose shop is literally beseiged on the day in question, and consequently the adjusting, as it is called, is often very carelessly done. As an instance, among a number of weights recently sent by a neighbour of mine to the Inspector for correction were three one pound weights, each of which when returned differed materially from the other, proving that two out of the three must have been sent back incorrect. Again, as evidence of the inefficiency of the present system of correcting measures, I may cite the instance of a widow woman residing here, who made application to the policeman to know when she should send some new measures she had purchased to be stamped. The policeman told her he would inquire and let her know, but this he failed to do, and the Inspector calling and finding the measures unstamped she was summoned to appear before the magistrates, and, although it was plain that the woman had no intention to defraud, still she was fined and had to pay expenses, which fell very heavy, being deducted from the hard earnings of an honest widow woman. In another instance the parishioners here not long since got up a subscription to pay the amount of an unjust fine inflicted by the magistrates upon an industrious widow. I could adduce numerous other instances of impositions which have been made in the name of justice in this neighbourhood, but I have already, I fear, intruded at too great length on your notice.

I trust the Commission now sitting will devise some means of remedying or removing the grievances here complained of.

I am, &c.
George N. Maynard.
To the Rt. Hon. J. Bright.

43. Suggested improved system of inspection.

43. *Suggestions for more satisfactory Inspection of Weights and Measures.*

Inspector at Bath to Board of Trade.

Weights and Measures Office, Bath,
Right Honourable Sir, March 8, 1869.

Fully concurring as I do, after some experience, in your remarks in the House of Commons on Friday night, upon the exaggeration of statement, and the injustice to tradesmen occasioned by the present system of inspecting weights and measures, I crave the liberty of submitting a few facts and making a suggestion or two in support of your position, which may probably be of service to you in any future discussion of the subject.

I became Inspector of Weights and Measures for this city and borough exactly seven years ago. My predecessor was aged, and was also in the habit of adjusting the weights brought to him which were deficient. This system, which is akin to that of receiving fees, or a portion of the penalties inflicted upon conviction, I had always thought to be a vicious system. The Town Council therefore (I believe chiefly upon my representation) withdrew all perquisites and fees whatever from the office, and simply voted me the same salary as my predecessor, with a condition that I should deliver to them a report quarterly. With this arrangement I have been perfectly satisfied. I find, however, that the fees for re-stamping, which I pay to the city treasurer, amount to four or five times as much as my predecessor paid in, whilst I have seldom occasion to summon a tradesman for the fraudulent use of weights. Most of my summonses have been against hawkers in the streets, who sometimes grossly defraud the poor by false weights and measures; but in the case of shopkeepers the offences have chiefly arisen from carelessness rather than dishonesty.

Whilst I deprecate the system of payment by fees or perquisites, as you see, the point to which I desire more particularly to call your attention is, the way in which the *innocent defalcations* of tradesmen may be met without subjecting them to penalties or the disgrace of conviction, whilst *fraud* can hardly escape punishment, and the interests of the public are protected.

When I undertook my present office I was very much struck with the unsatisfactory state of the law empowering Inspectors to enter premises and seize any weights not strictly in accordance with the standards, the parties in whose custody they were found being subject to penalties for any discrepancies, though the same might be totally unknown to them.

I therefore, with the concurrence of the Town Council, adopted the following plan (which the *Times* in reviewing some returns made last year, did me the honour of approving by stating that they thought it might be adopted with advantage in other parts of the country):—

I caused it to be made known that I required all weights in use within the borough to be brought to my office for supervision at least once in every half year, and those used in salt warehouses, or where any other corroding substances were brought into contact with them, oftener. I soon found that the great majority of tradesmen were quite ready, and indeed desirous, to acquiesce in such an arrangement. Consequently, when a tradesman's weights are brought (I have two office days in the week for this purpose), an entry is made in the ledger of the same, and I also give a certificate to the party, a blank copy of which I enclose.

Then, if upon personal inspection of the premises I find the same weights in use, I feel satisfied that no fraud is intended, unless there should appear to be something evident in the weights beyond mere wear and tear (such for

Appendix VI.—*continued.*

instance as breakage or the falling out of the adjusting metal). The tradesman is then either required to have the deficient weight immediately re-adjusted, or he subjects himself to the legal penalties, according to the special features of the case.

Now, under this system, which I have every confidence in saying is fully protective of the interests of the public, there were out of those brought to this office for examination during the year 1868 no fewer than 5,527 weights which were inaccurate and had to be re-adjusted and re-stamped, each one of which might have rendered the owner liable to a penalty had the existing law been enforced to the letter. And yet such weights were clearly inaccurate from wear and tear, and not fraudulently deficient.

Without desiring at all to be egotistical, I beg to say that I give place to no one in desire to carry out the spirit of the law so as to prevent fraud and injustice, but I submit that if the system I have briefly sketched were carefully carried out by regular and stated Inspectors throughout the country many objections now raised would be removed, and a policy of equal justice to both buyer and seller be established.

Apologizing for trespassing so far upon your attention,

I have, &c.

W. J. ENGLAND,
Inspector of Weights and Measures,
for City and Borough of Bath.

The Rt. Hon. John Bright,
President of the Board of Trade,
&c. &c.

(*a.*) *Form enclosed (in preceding letter).*

CITY AND BOROUGH OF BATH. I HEREBY CERTIFY that the following weights and measures have this day been examined and compared with the Standard copies, and have been duly stamped as being just and correct, *videlicet*:—

	Cwts.		Pounds.							Ounces.				Drachms.	
Weights	½	¼	14	7	4	2	1	½	¼	2	1	½	¼	2	1

Measures:—

brought to me for inspection and examination by of in the said city and borough.

Witness my hand, this day of 186 .

s. *d.*

Fees paid:— :

Inspector of Weights and Measures
for the said City and Borough.

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44. Frauds practised by street hawkers.

44. *Fraudulent Weights used by Street Hawkers.*
Mr. F. Plimley to the Board of Trade.

1, Richmond Road, Westbourne Grove,
RIGHT HON. SIR, Bayswater, W., March 10, 1869.

HAVING only last week terminated an office of two years' standing as an *unpaid* Inspector of Weights and Measures for the first division of the parish of Paddington, I beg most respectfully to endorse the statements made by you in reply to the noble Lord who introduced the discussion in the House of Commons, respecting fraudulent weights, &c.; I also gathered from your reply that a Commission was sitting, having reference to a better government of the whole system of weights, balances, &c.; permit me respectfully to call your attention to the gross frauds sometimes practised (I am afraid to a large extent) by the street hawkers of fruit, &c. Two cases came recently under our notice of a very bad character; the offenders were respectively selling grapes and apples; on an inspection of their weights we found them to be exactly half what they were intended to represent; had we discovered such a fraud being practised by a shopkeeper, we should have fined them as heavily as our Local Act would have permitted us; but, in the cases I mention all the punishment we could inflict, was a seizure of the weights. Such fraudulent practices not only are a robbery on the purchaser, but also a cruel injustice to the honest trader; with all submission I think there might very easily be a remedy devised to meet such cases of fraud.

I hope I shall not be considered impertinent in my thus calling your attention to one of the iniquities of the day, and

I remain, &c.
FRANCIS PLIMLEY.

To the Rt. Hon. John Bright, M.P.

P.S.—I ought perhaps to add, that I was an Inspector under the old system of juries.—F. P.

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45. *Suggestions to prevent tampering with Stamped Weights.*
Mr. J. G. Brown to the Board of Trade.

SIR, Northallerton, March 18, 1869.

IT occurs to me that the system of tampering with the weights now adjusted by the Police Department, might be further prevented by a simple contrivance in *the design of the weights* having a loose lid to cover a shot well, secured by two screws, with a keyed head to receive the Government stamp, struck fast into it by a moulded punch. No access could thus be got to the "shot well" without obliterating the Government stamp, which could be detected by the trader.

I am of opinion that as soon as the weights are adjusted in the present clumsy fashion, they are in many instances immediately falsified by extracting the lead.

I have, &c.

The Rt. Hon. John Bright, M.P. J. G. BROWN.

P.S.—The smaller weights could, by being made *hollow* assume a more "handy" form.

(Referred to Standards Department for remarks.)

Remarks by Warden of Standards.

THESE suggestions, like others, shall be submitted to the Standards Commission for their consideration, and the opinion of some of the Weight and Measure makers will probably be asked. The great difficulty in carrying out to any extent such a suggestion for adjusting the weights, would be the expense. The principle of the suggestion is already carried out in the copies of the standard weights furnished to the Inspectors, and in the standard weights themselves. It is therefore not new.

March 23. H. W. C.

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46. Insufficient protection of Inspectors, &c.

46. *Insufficient Protection of Inspectors in the Discharge of their Duties; Proportion of Convictions involving Fraud; First Conviction under Petroleum Act*, 1868.

Minute of Warden of the Standards, March 17, 1869.

MR. Gregg and Mr. Strugnell, two of the Inspectors of Weights and Measures for Middlesex, attended by appointment this morning at the Standards Office.

Mr. Strugnell called attention to s. 28 of the Act 5 & 6 Will. 4. c. 63., imposing a penalty on any person obstructing or hindering *an examination* of weights, &c. by the Inspectors. He stated that on a recent occasion, after completing the examination in a tradesman's shop, the tradesman entered and forcibly detained him there, alleging that he had come for an illegal purpose, although he produced a written authority from a magistrate. The tradesman then sent for a police officer and gave him in charge, but the officer refused to take him. Mr. Strugnell added that the Act contained no provision for protecting an Inspector thus acting in the discharge of his duties, and suggested the expediency of making an addition to this effect in s. 28.

In reply to a question by the Warden, the Inspectors agreed in stating that so far as their experience enabled them to judge, the proportion of convictions for offences against the Weights and Measures laws, in which there was deliberate fraud, was about 10 per cent. of the whole number of convictions.

The Inspector stated that at Boston, in Lincolnshire, a woman had recently been appointed Inspector of Weights and Measures.

Mr. Gregg delivered a copy of the "Surrey Comet" of 6th March 1869, with a report of the first prosecution and conviction under the Petroleum Act, 1868. The defendant, an oilman, pleaded ignorance of the law. The Surrey magistrates, although convinced there was no intention to evade the law, said the penalty provided by the statute was heavy, but they would inflict the lowest possible. Defendant was fined 10*s.* for the sale of the petroleum, which was proved to give off an inflammable vapour at a temperature less than 100° Fahr., 2*l.* for keeping it in his shop, and costs 1*l.* 5*s.*

H. W. CHISHOLM,
Warden.

Appendix VI.—*continued.*

47. Memorial from Tunbridge Wells for alteration of law.

47. *Memorial for Alteration of the Laws relating to the Inspection of Weights and Measures.*

From Tradesmen of Tunbridge Wells to Board of Trade.

To the Right Honourable JOHN BRIGHT, M.P.

The Memorial of the undersigned Tradesmen of Tunbridge Wells, in the County of Kent.

HUMBLY SHEWETH,

THAT your memorialists beg respectfully to solicit the favour of your attention to the present imperfect and unjust state of the law relating to weights and measures.

That your memorialists beg to refer to the well-known fact that a variety of circumstances exist to prevent the possibility of strict and undeviating accuracy in the weights and measures used for ordinary purposes by reason of their exposure to atmospheric influences, and unavoidable wear and tear; notwithstanding which the Act is so worded (5 & 6 Will. 4. c. 63. s. 28.) as to admit of no deviation whatever, however slight or from whatsoever cause arising. So rigorously has the law been recently carried out in this town and neighbourhood that many respectable tradesmen have been fined, some for using brass balancing balls to adjust their beams and scales, although the beam and scales were pronounced by the Inspector to be perfectly correct, and notwithstanding that this system of adjustment is admitted to be more accurate than any other. Others have been fined for a single drachm in large-sized weights, and in other cases one offence has been divided into two, and the parties have been fined 1*s.* and the cost, 10*s.* 6*d.*, twice over, under pretence that although the offence was committed in one and the same day, yet it came under two different sections of the Act, one a weight being too light, and the other a weight unstamped.

That your memorialists have heard with surprise that it has become a common practice to give one half the penalties to the Inspector, who is also the informer, and who keeps the article seized in his own possession until the day of hearing; and the costs, which it appears in many cases are ten times as much as the penalties, are usually given to the magistrate's clerk, or equally divided between that functionary and the Inspector.

That your memorialists would also refer to the fact that in addition to other causes why tradesmen's weights differ from the standard is because there is a considerable discrepancy in the standards used by Inspectors throughout the kingdom, arising from their being adjusted only once in five years, and then at periods distant from each other. Moreover, when adjusted no notice is given to the tradesman, who is thus rendered liable to the penalties of the Act through alterations made in the standards.

That your memorialists understand that the Government standards at the Board of Trade are considerably in error, not having been adjusted since the year 1826; and your memorialists trust that when the alterations are made notice thereof will be given; and they further understand an Act has recently been passed (24 & 25 Vict. c. 83.) by which errors may be tolerated in the standards, but not in the tradesmen's weights, &c.

That your memorialists would also refer to the fact that when these cases are adjudicated upon no regard whatever is paid to any defence that may be offered, but the parties are invariably convicted upon the evidence of persons deeply interested in the result, and upon the plea that the law is imperative, and gives to magistrates no discretionary power.

That your memorialists, whilst fully admitting the necessity of a constant and proper supervision of weights and measures, are nevertheless of opinion that the present system amounts to a gross outrage upon the civil rights and liberties of the trading class. They moreover inflict the most serious injury, if not actual ruin, upon many respectable families of undoubted integrity.

Your memorialists therefore humbly pray that you will be pleased to use your influence in order that a searching investigation may be made into the subject, and that the law may without delay be so altered and amended as to draw a proper distinction between persons who have wilfully offended and those who have unintentionally failed to comply with the technical requirements of an Act of Parliament, the provisions of which are wholly impracticable.

And you memorialists will ever pray, &c.

Signed by 14 Tradesmen of Tunbridge Wells, viz.:—

10 Grocers. 1 Gunsmith.
1 Baker. 1 Carver and Gilder.
1 Ironmonger.

(Referred by the Board of Trade to the Warden of the Standards for remarks.)

Remarks by the Warden of the Standards.

A COPY of the memorial shall be laid before the Standards Commission, who have already before them a memorial upon the same subject from one of these tradesmen.* The attention of the Commission has already been drawn to the several points contained in the memorial, and the whole subject will very shortly be considered by them with the view of recommending such alterations of the law as they may judge expedient. The memorialists may be also informed that although no adjustment of the official standards was provided for by law until the passing of the Act 29 & 30 Vict. c. 82., in 1866, they make a mistake in thinking that they were found to be "*considerably in error.*" The actual errors of the standard avoirdupoise weights are stated in the first report of the Warden of the Standards, printed for Parliament in 1867, and published and procurable for 1½*d.* They were also communicated to the Inspectors and others in a circular,† a copy of which is enclosed. The errors are so small that they could have no injurious effect upon the determination of the justice of the corresponding weights in common use.

H. W. CHISHOLM,
April 10, 1869. Warden of the Standards.

48. Illegality of heaped and square measures of capacity.

48. *Illegality of Heaped Measures, and of diversity of shape of Measures of Capacity.*

From Bridgemaster, Northallerton, to Board of Trade.

N. R. Bridgemaster, Northallerton,
SIR, April 30, 1869.

I HAVE the honour to enclose you clip from York Herald of to-day on the subject of weights and measures.

"Abolition of the heaped measure.—In many neighbouring towns it has always been the custom to sell field and garden produce by quartern, peck, and bushel, the diversity of shape of these measures giving the dishonest salesman the power of defrauding the customer—usually the poor who buy in small quantities—to the extent of 10 or 20 per cent. The practice was rendered illegal by the Act 5 & 6 Will. 4. c. 63. s. 7., but the Act has never been enforced. The glaring robbery practised on the public by the heaped measure system has become so patent that the Inspectors of Weights and Measures are enforcing the Act. Time, however, is being given to provide weights and scales.

"In the Malton market no measures will be allowed after to-day (Saturday), notice to that effect having been issued by Superintendent Gregory."

I am, &c.
J. G. BROWN.

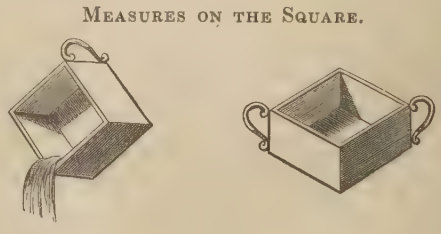
The Rt. Hon. John Bright, M.P.

Remarks by the Warden of the Standards.

The illegality is here admitted of selling by heaped measures, and of diversity of shape of measures of capacity for "such articles heretofore sold by heaped measures as "are from their size and shape incapable of being shaken, "and from their nature and quality may not be con-"veniently sold by weight," and has been already referred to by me in the remarks dated 1st March 1849 (see III.–IV., p. 4). It is the duty of Inspectors of Weights and Measures to see that the law is enforced.

Such measures of capacity only are required by law (5 Geo. 4. c. 74. s. 7, and 5 & 6 Will. 4. c. 63. s. 8), to be of an uniform shape, viz., "made round with a plain and "even bottom." It would appear from a sketch which accompanies Mr. Brown's letter that square measures of capacity are now in use, viz.:—

MEASURES ON THE SQUARE.



FLUID. DRY.

Dry measures of this form for articles formerly sold by heaped measures are illegal. But there is now no other restriction as to the shape of weights and measures in common use.

* See III.—III., p. 7. † Minute, October 15, 1867.

Appendix VI.—*continued.*

S. 11 of the Act 5 Geo. 4. c. 74. directs that "copies and models" of the Exchequer standards are to be verified for the districts of inspection. A doubt arose at the Exchequer whether copies differing in *form and material* should be verified, and application was made in 1827 to the Treasury, who considered that "the model and copy "must be of the same shape and of similar materials with "the original of which it purports to be a model and "copy." The opinion of the Attorney and Solicitor General was subsequently given to the same effect. This decision caused great dissatisfaction, and, indeed, confusion throughout the country, particularly in respect to the shape of the weights, the Exchequer Standards being spherical and the copies generally bell-shaped. The question was brought before the Select Committee of the House of Commons in 1834, on the Weights and Measures Bill, and evidence was given that it would be for the public convenience that the law should be altered with respect to the shape of weights, but that measures for dry goods should still be required to be cylindrical, and that all copies of the standards should be of similar metal to that of the Exchequer standards.

A clause (3) was consequently introduced into the 5 & 6 Will. 4. c. 63., to repeal the provision requiring that all weights and measures should be models and copies in *shape and form* of the Exchequer standards.

H. W. CHISHOLM,
Standards Office, May 10, 1867. Warden.

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49. Petition of Inspectors for relief from taxes.

49. *Petition of Inspectors of Weights and Measures for relief of payment of Assessed Taxes on Horses, &c.*

To the Right Honourable Robert Lowe, Her Majesty's Chancellor of the Exchequer.

The humble petition of John Edward Knight, Maurice Richards, both of Stafford, and John George Horder, of Goldthorn Hill, near Wolverhampton, Inspectors of Weights and Measures for the County of Stafford.

SHEWETH,

THAT your petitioners are the Inspectors of Weights and Measures for the county of Stafford.

That your petitioners are required to provide and keep at their own cost a horse and carriage for the purpose of conveying the standard weights and measures to the various places in each of their respective districts.

That each of your petitioners is charged to the assessed taxes for a horse, carriage, and groom, although such horse, &c. is used by them in the performance of their respective duties only.

That the payment of the said taxes is felt by your petitioners to be a great hardship.

Wherefore your petitioners humbly pray that you will be pleased to consider the premises, and relieve your petitioners from the payment of assessed taxes upon their horses, carriages, and grooms.

And your petitioners as in duty bound will ever pray.

J. E. KNIGHT,
Inspector of Weights and Measures for North Staffordshire.
M. RICHARDS,
Inspector of Weights and Measures, Central Staffordshire.
J. GEO. HORDER,
Inspector of Weights and Measures,
27th April 1869. South Staffordshire.

Referred to the Warden of the Standards.

Remarks of the Warden of the Standards.

7, Old Palace Yard, May 1, 1869.

Staffordshire is almost the only county of which I can give no information on the inspection of weights and measures, as the county authorities took no notice of repeated applications from the Standards Commission.

In most counties of Great Britain, *but not in Staffordshire* (see p. 42 of Commons Return, No. 22 of 1869, Report of Inspectors of Constabulary), and throughout Ireland, the inspection of weights and measures is performed by the police, who receive no extra pay for these duties, but are allowed their expenses, including the keep of a horse when required.

It is well known that the whole cost of the Irish constabulary, and one-fourth of the British county and borough police, is paid from the public revenue.

It is suggested that a reply may be sent to the petitioners that their remuneration rests with the county authorities, who ought to allow for any necessary expenses of the Inspectors, such as the keep and tax of a horse.

H. W. CHISHOLM.

Note.—12th November 1869. Since these remarks were written, full returns of the inspection of weights and measures in Staffordshire have been received from the Inspectors. The application for these returns had been made to the local authorities in Staffordshire, through the Clerk of the Peace who appears to have taken no notice of them.

H. W. C.

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50. Mr. Roberts' suggested system for improving inspection.

50. *On existing system of Inspection of Weights and Measures, with Suggestions for consideration from M. Roberts, Esq.*

Pendarren, Crickhowell,
DEAR SIR, May 15, 1869.

I SEE by the papers that you have lately had a meeting of your Board, and I hope you have been able to impress the members with the necessity of carrying out your views, as to making it an offence *to sell any article deficient* in its reputed weight or measure; the poor workman (especially in country villages) has for years been robbed by fraudulent tradesmen, and redress *lies at your hand*, and I am sure you will give it them ere long.

I sat on the bench yesterday, and a man who was fined for short measure complained bitterly that the real offender was the earthenware merchant who sold him short measures; this evil I believe you intend also to provide for by making it an offence *to sell* a measure or weight below its reputed standard, as well as to sell other articles (sugar, &c.) short. I trust also that a set of weights and measures will be kept at every petty sessional division, so that redress will be within every poor man's reach. But I would abolish the perambulation of the Inspector to adjust. It does no good, and is very expensive. The average cost to each county of this is about 100*l.* a year, you can put the cost at 5,000*l.* or 6,000*l.* a year to the kingdom of this. Now two Inspectors from your office to go circuit and "*verify*" all the sets of weights and measures in England and Wales would suffice. In this way, on a named day the Government Inspector would attend at the county town, bringing with him a Government set of weights and measures, and to meet him would be the superintendents of police, having with them all the sets of weights and measures belonging to the several petty sessional divisions, and the Government Inspector would then and there *verify* these county sets. Two days in each county town would suffice for the work, 26 county towns to each Government Inspector to visit once a year. The subsidiary sets remaining at police stations would be acceptable to every one who wished to "*adjust*" their weights and measures by those of the county, and there would therefore be no occasion for the useless journeys of Inspectors round each county to "*adjust*," and a considerable saving of money would ensue, and more thorough inspection that now exists would be created. You must remember that it is very difficult to get a working man to take any extra trouble, even for his own interest; therefore the means of obtaining his rights must be brought *to his door*, and the placing of subsidiary sets in every petty sessional division would enable him to see if he has been cheated or not. There is one little difficulty connected with magistrates adjudicating on the offence of *selling* any article under weight or measure, which is the possibility of persons tampering with the article *after leaving* the shop where it was sold; there must be *clear and ample* proof that the thing sold was of short weight when the seller delivered it, and how is this always to be got; the *buyer* may be a rogue, and we would not convict on his sole oath. I merely throw this out for your consideration.

You may be quite sure that any assistance I can give you in your important operations is freely at your service. You spoke of wanting my evidence, are you likely to want it this session?

I think you will find my plan of having *galvanized* iron weights will do well. I have bought 14 sets at 4*l.* 10*s.* per set, all *most accurately* adjusted; this 4*l.* 10*s.* included a handsome pair of scales.

Believe me, &c.
MARTYN ROBERTS.

The Warden of the Standards.

Appendix VI.—*continued.*

51. Mr. Hayman's proposed amendments in the law.

51. *Proposed Amendments in the Laws relating to the Inspection of Weights and Measures.*

From Mr. Hayman.

Society for Promoting the Interests of the Trading Community,
18A, Basinghall Street, May 30, 1869.

SIR,

I AM further requested to beg the favour of your attention to the following remarks, having for their object an amendment of the laws relating to weights and measures, and especially as regards the present system of inspection, and the mode of adjudication.

It is impossible to overlook the difficulty that exists in respect to the work of inspection, in order that the public may be effectually protected on the one hand, and no injustice be done to tradesmen on the other.

(After repeating the substance of his statements in preceding letters, complaining of seizures of weights for trifling deviations; of the Inspector receiving half the penalty; the oppressive amount of costs; the unequal amount of penalties for a similar offence in different localities, &c., Mr. Hayman continues),—

I am requested respectfully to beg the favour of yourself and the Royal Commissioners, taking into your consideration whether a clause might not be introduced into any future enactment on the subject, to the effect that the Warden of the Standards should from time to time be authorized to draw up rules for the guidance of all persons engaged in the inspection of weights and measures (upon which they should be compelled to act), subject nevertheless to the approval of one or more of Her Majesty's Secretaries of State, or the President of the Board of Trade; and if this cannot be done, might not the drawing of such rules be delegated to the magistracy of each county, subject to the same kind of veto?

Such a document might be so worded as to draw a proper distinction with regard to the amount of deviation (if any) to be tolerated in large and small weights, &c., and those used in the sale of expensive and of inexpensive articles, and might also contain such general instructions and such details as would ensure one uniform system of inspection throughout the kingdom, and thereby protect all parties from the injustice which now prevails.

I would also take the liberty of suggesting that in any future law, much fraud and deception might be prevented, and a great boon conferred on the poorer class of dealers (who are systematically defrauded), if what is called "local and customary measures" (sieves, &c.), used in the sale of fruit, &c., had the amount of imperial weight or measure of the article therein contained marked upon them; and if corn and other grain was compulsorily sold by the imperial bushel measures (with the right of guaranteeing its weight per bushel), that would also be a great benefit; the dishonest practices now prevailing in the markets alluded to, is the cause of many failures and great distress.

In conclusion, permit me to add that this society and other persons belonging to the trading class, are of opinion,—

That whenever weights and measures are inspected and found to be only slightly at variance with the standard, or when they are correct, but not stamped, or stamped and yet incorrect (provided it shall be clear that no alteration has been practised upon them), then that the Inspector should put his mark upon them, and a written notice should be left, and sufficient time given to correct the same before any other proceedings take place.

That whenever a seizure is made, a written notice stating the nature and extent of the inaccuracy should also be left, and time given to call in a witness if required.

That all beams and scales and other weighing machines should be tested and stamped by a proper officer before being sold.

That Inspectors should deliver to those who appoint them, a weekly list (as in the city) of all the calls they have made and the result thereof.

That the Inspector's man should be appointed and paid by the same authorities who appoints the Inspector.

Lastly, that the present system of giving one-half of the penalties to the Inspector, and the costs to the justice's clerks, should be both entirely abolished.

Trusting you will not deem the remarks I have made out of place, and that the efforts of the Royal Commissioners will be the means of speedily placing the law relating to weights and measures on a more just and equitable footing.

I have, &c.
JAS. HAYMAN.

To the Warden of the Standards,
&c. &c. &c.
Board of Trade.

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52. Complaints of the law, &c. from Bearsted Trade Society.

52. *On the present unjust working of Weights and Measures Laws.*

Memorial from Bearsted Trade Society.

(No date, received at Board of Trade June 16, 1869.)

Petition for amending the Law relating to Weights and Measures.

To the Right Honourable John Bright, Her Majesty's President of the Board of Trade.

HONOURED SIR,

THE undersigned petitioners residing in the Bearsted division of the county of Kent humbly ask your kind attention to the present unjust and unequal working of the present law of weights and measures in this district.

That under the existing law divers persons have at various times been heavily fined for the most fractional and trivial variations in large weights and scales; and also others unjustly so for old weights and portions of weights and scales in outhouses and premises where goods are *not* exposed for sale, such convictions not being in conformity with the provisions of the present Act.

And also that your petitioners earnestly deprecate the practice of giving one-half the fine inflicted to the already well-paid Inspector, and large and ruinous costs to the magistrates' clerk, as by so doing a most inquisitorial and tyrannical espionage is inflicted on many thoroughly honest and respectable tradesmen and merchants in the district.

Your petitioners also beg that in event of any new Act for the better administration of the law of weights and measures being framed, that a fair allowance for variation (more or less) be allowed in tradesmen's scales and weights for wear, accumulation, or atmospheric influence, and which variations are known to constantly exist by persons conversant with the subject.

Also that as public opinion always demands that the scale containing the goods should descend below that containing the weight (such being called the "turn of the scale"), we ask that this fact should have its due weight in any new legislation on the subject.

Your petitioners also earnestly ask that *conviction shall be confined to cases of fraud,* and of *gross* negligence, and in event of fraud being proved, they ask that a severe punishment should be inflicted in order that a proper distinction be made between the innocent and guilty trader, and *which distinction does not exist at present.*

Hoping that you, Sir, will kindly give your earnest attention to the above facts.

We are, &c.
THOS. CLARK, and 17 others,
The Committee and Managers of Bearsted Trade Society.

Appendix to Memorial.

Inequality of action of law.

In the borough of Maidstone the number of convictions does not exceed four per annum, whereas in the Bearsted district, containing 22 small parishes, the number fined are at least 10 times those in the borough of Maidstone, while the actual number of persons using weights and measures is less than in the borough.

Convictions contrary to Act.

At Sutton Valence and Headcorn, smiths were summoned for portions of old iron weights which had not been used, *nor ever were,* by them for any purpose of *selling by weight,* and a butcher at Headcorn for a small technical variation in a large beam in a slaughter-house, a place where goods were *never sold.*

The following is a statement from a Maidstone paper (The Telegraph) of the conviction on the 7th June last (1869) by the Bearsted bench, Sir G. Hampson, Bart., in the chair.

Stephen Andrews, baker and corn dealer, Harrietsham, was summoned for having an incorrect weighing machine in his possession.

Appendix VI.—*continued.*

Mr. Shadgett deposed that on the 3rd March he found a weighing machine on the premises, wanting half a pound to make the balance.

In answer to the chairman, prosecutor stated that the balance was against defendant, and in favour of the purchaser, if defendant sold by the scales.

The evidence was confirmed by White, and the bench fined defendant 10*s.* and 10*s.* costs.

Defendant said that he had only taken the business about a fortnight. His apology for giving the public the benefit of a half pound was of no avail.

Inspector already well paid.

It has been admitted by the Kent General Adjourned Sessions, that the Inspector is already well paid without receiving any moiety of the fines. *Vide* the said sessions of August 1867.

Ruinous costs to magistrate's clerk in unimportant cases.

Stephen John Sawyer, of Headcorn, grocer and draper, in April 1866, was fined one shilling and *costs nine shillings*, for an unstamped yard measure, and in May 1867 for one ¼ oz. weight unstamped, one shilling fine and nine shillings costs, the weight and the measure having been passed by the Inspector for some years, and admitted by him to be perfectly correct.

Variation from wear and atmospheric influence.

It is a well-known fact that weights and scales of large size, and especially if balanced with lead, which is usually the case, will gain in damp weather and lose in dry.

Well-known public bias and opinion.

Public custom always demands what is called the turn of the scale, and which turn in an even standing beam is always overweight, as it is manifest that the goods should be even with the weight to be exact.

Fraud seldom distinguished under the present action of the law.

Under the present action of the magisterial courts, the trader, for any variation for which he may be summoned, is always convicted by the Inspector's statement, whereas in the majority of cases no fraud was ever intended, as many cases of fines for overweight testify, so that the trader is always assumed to be guilty, which assumption is contrary to every other action of English jurisprudence.

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53. Inspection of canteens in barracks.

53. *Inspection of Weights and Measures at Canteens in Barracks.*

From Inspector of Weights, &c., Middlesex.

Sir, Brentford, August 23, 1869.

As Inspector of Weights and Measures for No. 4 district of the county of Middlesex, will you have the kindness to inform me if there is any Act of Parliament, or any case decided, to prevent an Inspector of Weights and Measures entering canteens in barracks. Under the 5 & 6 Will. 4. c. 63. s. 28. I have inspected the canteens at Hampton Court and Hounslow barracks for nearly 18 years, and have had many convictions, the first conviction February 1853, the last October 1867. The fine on the last action was 5*l.* for 64 unjust weights and measures.

On Wednesday last I entered the canteen at Hounslow and was examining the weights and measures when the adjutant came and ordered me out of the barracks, and gave orders for the keeper of the canteen to see me out of the gates, which was done. I have summoned the adjutant and the keeper of the canteen for obstructing me in the execution of my duty under the 5 & 6 Will. 4. s. 28. The summons will be heard on Saturday next at Brentford. Sir, any information you may please to give me will greatly oblige before Saturday.

Yours, &c.

H. W. Chisholm, Esq. James Gregg.

The Warden of the Standards, in reply.

Sir, 7, Old Palace Yard, August 25, 1869.

In reply to your letter of the 23rd instant, requesting me to give you any information upon the question of your being empowered to enter canteens, and inspect the weights and measures used there, I have to state to you,—

1. That there appears to be no doubt of your being so empowered under s. 28 of the Act 5 & 6 Will. 4. c. 63., provided that the canteen is within the jurisdiction of the magistrate by whom you are authorized in writing to act.

2. Unless canteens are specially exempted from your inspection, under the provisions of any other Act.

3. In order to ascertain how far this may be the case, I have examined the Mutiny Act of the present session, 32 Vict. c. 4. as well as the Rules and Articles of War, and other Acts relating to military duties, published in a collected form by the Queen's Printers.

4. I can find no provision of law whatever exempting canteens from your inspection.

5. In s. 93 of the Mutiny Act, which relates to the licensing of canteens, a provision is contained that persons holding canteens under proper authority of the War Department, and having excise licences, "may sell therein "victuals and exciseable liquors, as empowered by such "excise licence, without being subject to any penalty or "forfeiture."

My own impression is that this exemption applies only to penalties and forfeitures under the excise laws, and not under the weights and measures laws.

6. I have been informed that in January 1868 proceedings were taken by Mr. James, Inspector of Weights and Measures at Woolwich, against the officer in charge of the mess room of the Coast Brigade, Royal Artillery, for obstructing him in his endeavour to inspect the weights and measures there; and that the case was heard before Sir T. M. Wilson, Bart., in petty sessions, when it was decided to refer the whole question to the War Department. No information of the result has yet reached me; but I have written to-day to the Inspector at Woolwich upon the subject.

7. Upon the whole I consider that what you have to do is to perform your duties of inspection as laid down in the Weights and Measures Acts, and that it is for those persons who obstruct or hinder you in the performance of your duties to prove that they are justified in doing so, and that they are not liable to the penalty imposed by s. 28 of the 5 & 6 Will. 4. c. 63.

I am, &c.

Mr. James Gregg. H. W. Chisholm.

From the Warden of the Standards, in continuation.

Sir, 7, Old Palace Yard, August 27, 1869.

With reference to my letter of the 25th instant, I have to add that from a letter just received from the Inspector of Weights and Measures, Woolwich, it appears that the decision of the justices on January 11, 1868, on the case of the Quartermaster-Serjeant summoned for obstructing the Inspector, was as follows:—

"Summons dismissed, the justices being of opinion that defendant acted under the impression that he was not authorized to allow inspection.

"But the justices were of opinion that the Inspector was justified inspecting the measures."

I may also inform you that s. 76 of the Mutiny Act contains an express provision that nothing in the Act shall be construed to extend to exempt any officer or soldier from being proceeded against by the ordinary course of law, except for offences mentioned in the Act, and it provides for the punishment of officers obstructing civil justice.

I am, &c.

Mr. James Gregg. H. W. Chisholm.

From the Inspector, &c., Middlesex, in continuation.

Sir, Brentford, September 2, 1869.

I beg to inform you of the result of my proceedings against the adjutant and keeper of the canteen, Hounslow barracks. Both pleaded guilty; the adjutant was fined 40*s.* and costs, the keeper 1*s.* Sir, I will send you on Saturday next a local paper with the whole of the proceedings in. I also return you thanks for your important information to guide me in my proceedings. Inspector James from Woolwich, and Hamler, from Lewisham, were present to hear the proceedings.

I am, &c.

H. W. Chisholm, Esq. James Gregg.

It appears from the report of the proceedings in the "Buckinghamshire Advertiser" of September 4th, that the charge was admitted, but justification pleaded. The adjutant in his defence produced instructions he had received from the War Office, to the effect that arrangements were to be made to prevent the local Inspector from entering the barracks. The magistrates after consultation decided that this was not a case in which it was necessary to inflict a heavy fine, but the Inspector had been obstructed in the execution of his duty, and the adjutant would be fined 2*l.* and costs; the serjeant, as he was acting simply under the direction of a superior officer, would be fined 1*s.*

Appendix VI.—*continued.*

From Home Secretary of State to Chairman of Board of Middlesex Magistrates.

SIR, Whitehall, December 13, 1869.

IN consequence of a communication addressed to the Home Department by the Secretary of State for War, on the subject of the inspection of weights and measures used in regimental canteens, I am directed by Mr. Secretary Bruce to acquaint you that it is very desirable that the Local Inspectors should be instructed to test the weights and measures in all such canteens, but that, instead of taking proceedings under the 5th and 6th Wm. IV. cap. 63. s. 28, against the canteen serjeant or keeper, for any deficiencies that may be discovered, the Inspector should make a report of the facts to the Under Secretary of State for the War Department, in order that the matter may be dealt with by that Department. I am, therefore, to request that you will submit to the next Court of Quarter Sessions for the County of Middlesex Mr. Bruce's recommendation, that an order to that effect should be made by the Court in respect of the regimental canteens named in the margin.

Tower of London.
St. George's Barracks.
Wellington Barracks.
Chelsea.
Kensington.
Regent's Park.
Knightsbridge.
Hounslow.

I am, &c.
A. F. O. LIDDELL.

The Chairman of Quarter Sessions,
for the County of Middlesex.

Report of Deputy Clerk of the Peace for Middlesex on the preceding Letter.

Sessions House, Clerkenwell,
February 21, 1870.

To Her Majesty's Justices of the Peace for the County of Middlesex.

GENTLEMEN,

IN pursuance of the reference made to me at the last County Day for my advice and opinion with reference to the circular letter of the Secretary of State for the Home Department, dated the 13th December 1869, intimating that it is very desirable that the Local Inspectors should be instructed to test weights and measures in all canteens, but that instead of taking proceedings under the 5th and 6th William IV. cap. 63, section 28, against the canteen serjeant or keeper, for any deficiency that may be discovered, the Inspectors should make report of the fact to the Under Secretary of State for the War Department in order that the matter might be dealt with by that Department, and the Secretary of State's recommendation that an order to that effect should be made by the Court in respect to the canteens named in the margin, I have the honour to report that neither the 5th and 6th William IV. cap. 63, nor the Mutiny Act appear to contain any provisions which exempt the keepers of canteens from the general law with reference to weights and measures or relieve them from the consequences attaching to an infraction of that law.

Tower of London.
St. George's Barracks.
Wellington Barracks.
Chelsea.
Kensington.
Regent's Park.
Knightsbridge.
Hounslow.

I am, &c.
RICHD. NICHOLSON,
Clerk of the Peace.

On the preceding Report, the following resolutions were adopted by the Court on the County Day of the February General Session, 1870.

Resolved—"That the Report be received and be printed and circulated in the usual way."

Resolved—"That the Court is of opinion that it is incompetent in the interests of public justice that the suggestion of the Secretary of State be adopted."

Resolved—"That the Clerk of the Peace do reply to the letter accordingly."

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54. Marking of quart and pint measures.

54. *Fixing the size of reputed Quart and Pint Bottles for Wine, Ale, &c.*

Mr. George Jay to the President of the Board of Trade.

SIR, Norwich, September 15, 1869.

I BEG to suggest that it would be a great public benefit for the Government to fix the size of the ordinary pint and quart bottles used for wine, spirits, ale, and porter, each bottle to be *marked with the quantity it should hold.*

The pint bottle now in use for ale contains a little more than a common glass. The wine bottles are less by two or three wine glasses than they were thirty years since, and are getting smaller every year. There is a deal of bitter ale sold in bottles. Nearly all port and sherry is delivered in bottles.

Hoping you may deem this suggestion worth your attention,

I have, &c.
GEORGE JAY.

The Right Hon. John Bright, M.P.,
President of the Board of Trade.

Remarks by the Warden of the Standards.

Amongst the new standards recommended to be legalized by the Commission in their First Report, are standard measures of capacity of $\frac{1}{6}$ and $\frac{1}{12}$ gallon, as measures of the wine bottle and half wine bottle. The legal establishment of such standard measure must be the first step towards securing uniformity and just measure in the bottles in which wine, spirits, and malt liquors are commonly sold. The construction and verification of such standards, which should precede their legalization, will be proceeded with as soon as the re-verification of the existing standard measures of capacity, particularly the gallon, now in progress, shall have been completed.

The ordinary wine bottle, and half bottle are known as *reputed* quarts and pints, and are generally considered to hold $\frac{1}{6}$ and $\frac{1}{12}$ gallon respectively. Some tradesmen guarantee this quantity, although, as Mr. Jay states, such bottles are much more frequently found to hold less. It has also become a practice with many tradesmen to sell wine, &c. in *imperial* quart and pint, and even half pint bottles.

One of the points to which the attention of the Standards Commission has recently been directed is the question of legibly marking every weight and measure with its legal denomination. Such a regulation, if it were applicable to all bottles containing wine, &c. for sale, (except the existing stock and those bonâ fide imported from foreign countries), together with the establishment of standard bottle measures, would appear to be all that is required to carry out Mr. Jay's suggestion.

But the question is a large one, and requires careful consideration.

It is a matter of importance to lay down a clear distinction between *measures* holding a specified legal quantity and *vessels* holding any quantity. The evidence before the Commission tends to show the expediency of adopting in this country the regulation established in France, and to require not only that every *measure* should be tested by the verifying officer, but that it should be marked with its legal denomination.

In France there are no *glass measures* of capacity. The materials of which the measures are to be made are strictly defined by legal regulations, and glass is not amongst them. Glass bottles are considered merely as *vessels.*

Our practice is different. Glass and earthenware measures of capacity are legally recognized under s. 21. of the 5 & 6 Will. 4. c. 63., which enacts that no glass or earthenware jug or drinking cup, though represented as containing the amount of any imperial measure, need be stamped, but that any person buying by any vessel so represented may require its contents to be ascertained by any stamped measure, to be provided by the seller, and if the seller refuse to make such comparison, or if, when made, the vessel shall be deficient in quantity, he shall on conviction be subject to the legal penalties for using unjust measures.

Many publicans have been convicted under this clause for selling liquors in glass or earthenware vessels deficient in quantity, though there is generally a difficulty in proving the vessels to have been represented as *measures.* But I have never heard that this clause has been held to extend to ordinary wine or beer bottles, or has been attempted to be carried out in relation to them.

The question of the expediency of verifying all glass and earthenware measures of capacity by a stamp or mark has been raised before the Commission, and is still under consideration. But it would hardly be practicable so to verify all glass bottles purporting to contain a specified legal measure of wine or other liquid.

It appears to me that a regulation requiring that all bottles to contain wine, spirits, or malt liquors for sale, shall be legal measures, and be cast or made with their legal denominations of measure marked upon them, but exempting them from the verification and stamp of the verifying officer, would meet the case, if they were at the same time made subject to the provision of the clause above recited.

In the meantime Mr. Jay's letter, and these remarks shall be laid before the Standards Commission, and it may be sufficient to reply to Mr. Jay that the subject is under

Appendix VI.—*continued.*

the consideration of the Commission, and that his suggestion has been referred to them.

H. W. Chisholm.

Torquay, September 21, 1869.

55. Application for definite oyster measure.

55. *Definite Oyster Measure required.*

From Mr. John Smith, Burnham, Essex.

The Limes, Burnham, Essex,
September 13, 1869.

Sir,

Being largely concerned in the native oyster trade, I am induced to ask you to give us a definite oyster measure. The price of native oysters is high, the measure is subject to no standard or inspection. I suppose it never had any, so that we get no guaranteed measure; old oyster bushels are used when worn to less than their proper size.

I am speaking more of the wholesale than of the Billingsgate measure; that I believe is under the corporation of the City of London. But supposing I send a cargo of oysters to France or Belgium (a great number go yearly), it will be shipped by not one shipper, but perhaps eight or ten, as the case may be; there is often a squabble about the measure, but as we have no proper standard, the result is unsatisfactory. I shall be happy to reply to any question you may thing proper to ask me on this subject.

I am, &c.

John Smith.

The President of the Board of Trade.

Remarks by the Warden of the Standards.

No special standard of capacity is required for oysters any more than for other dry commodities. The bushel is, I believe, the unit for measuring these and other shell fish. The evidence before the Standards Commission (Q. 1865) shows that iron measures are now stamped for Billingsgate market, and used for shell fish. These measures are stamped by the authorized officer appointed by the corporation of the City of London, and are liable to inspection from time to time by the Inspector of Weights and Measures. But this is done under the provisions of the general law, which are applicable to the whole kingdom.

The mode of measuring oysters to be sold by the bushel is provided for in s. 8. of the 5 & 6 Will. 4. c. 63. They are to be filled in all parts as nearly to the level of the brim as the size and shape of the article sold will admit.

This clause was inserted in the Bill of 1835 under the recommendation of the Select Committee of the House of Commons to whom it had been referred, and was more immediately applicable to the sale of lime, upon which the evidence of several witnesses was given to the Committee.

I cannot therefore see that Mr. Smith has any well-founded complaint against the law, or that any new provision is called for, as both oyster measures and their inspection are now provided. The tubs, barrels, or baskets, for containing oysters, are *vessels*, not *measures*, and Mr. Smith, like any other purchaser, should take care to get his proper quantity, on the principle of *caveat emptor*.

For this purpose I should recommend him not only to provide himself with a proper bushel measure, but also with a measuring gauge, such as that designed by the Astronomer Royal, and which may be procured from Messrs. De Grave & Co., 59, St. Martin-le-Grand.

I shall lay Mr. Smith's letter and these remarks before the Standards Commission. In the event of there being any other special circumstances in relation to oyster measures and their inspection, of which I am not aware, if Mr. Smith will communicate them to me they shall be submitted to the chairman of the Commission, with the view of his considering whether it may be expedient to have Mr. Smith's evidence upon the subject.

H. W. Chisholm.

Torquay, September 23, 1869.

56. Gross and net weight of sugar.

56. *Gross and Net Weight in selling Sugar.*

From Mr. Brydges, Solicitor, Cheltenham.

Public Office, Cheltenham,
September 27, 1869.

Sir,

I see from the newspapers that several grocers in Lancashire have been recently fined by the local magistrates for selling pounds and half pounds of sugar of less than the nominal weight by the weight of the paper, in other words, gross instead of net. Now as the profit on sugar is merely nominal, and is almost absorbed by the carriage from the wholesale dealer to the retailer and from the retailer to the customer, it stands to reason that a grocer cannot sell sugar by retail at present prices and give the wrapper into the bargain, without selling at an absolute loss. I understand that it has for many years been the universal practice of sugar retailers to weigh the paper with the sugar, and perhaps that may account in some measure for the smallness of the profit at which it is sold; but at all events the smallness of the profit shows that the customers do not lose by the practice.

To prevent injustice one of two things must be done, either the law (if the Lancashire magistrates rightly interpreted it) must be altered, or the retail prices of sugar must be raised to compensate the grocer for his paper bags and wrappers.

On behalf of a client who is largely engaged in the sugar trade, I beg to inquire—

1. Whether selling sugar by retail *gross instead of net*, is an offence against any, and if any, what statute? and if so,—

2. Whether Her Majesty's Government have any intention of introducing a Bill into Parliament for repealing such statute, either alone or with others as obsolete and useless as itself?

I am, &c.

E. T. Brydges.

The Rt. Hon. John Bright, M.P.

Remarks by the Warden of the Standards.

1. I am not aware of any provision of law by which it is made an offence to sell sugar by retail *gross instead of net*, or including the weight of the paper wrapper. I believe that no such provision is to be found amongst the general statutes of Great Britain. There may possibly be local Acts containing such a provision, but I know of none. One of the most experienced Inspector of Weights and Measures in the county is Mr. Mellor, of Manchester. In his evidence before the Standards Commission (Q. 2348) he calls attention to the practice of making up parcels of sugar short of weight as one of those "fraudulent cases "where the Inspector has no power to interfere. All that "the Inspector can do is to see that the weights and "scales are perfectly accurate, and there his powers are "exhausted."

In Ireland the law is different. Under sect. 14 of 25 & 26 Vict. c. 76. the weight of every article sold is to be "the true weight of the article in full net standing "beam, and no deduction or allowance for tret of beamage, "of on any other account, or under any other name whatsoever, *the weight of any such bag, cask, firkin, or other "covering in which such article may be alone excepted*, shall "be claimed or made by a purchaser on any pretext "whatever, under a penalty not exceeding 5*l*."

It will be seen that this clause expressly legalizes in *Ireland* the practice of selling sugar by retail gross, or including the weight of the paper covering.

Sect. 14 of the same Act makes it punishable to sell any article fraudulently short of weight. "If any person "knowingly weigh or cause to be weighed contrary to the "provisions of this Act, or act or assist in committing or "connive at any fraud respecting the weighing or the "weight or measure of any article, for each offence he "shall be liable to a penalty not exceeding 5*l*."

Sect. 8 of the same Act empowers the Inspector to seize all weights and scales in Ireland, *if any fraud shall be wilfully committed in the using thereof*, the owner being liable to the penalty not exceeding 5*l*.

It appears to be expedient that the law in this respect should be assimilated in the two countries, and this is a point now under the consideration of the Standards Commission.

As regards the principle upon which the law is at present based in this country, so far as concerns the question now raised, it is that the buyer should take care of himself and see that he gets his proper weight, the law providing only that due means are furnished, namely, just weights, measures, and balances. Security against their fraudulent use should also as far as possible be provided.

The argument that the law should interfere to legalize the sale of sugar by weight, including the wrapper, on the ground of the small profit at which this particular commodity is sold, appears quite inadmissible.

Sugar is one of those articles commonly sold in packets ready made up, and of stated weight, and it is not the practice to weigh such parcels in the presence of the buyer. Evidence has been produced before the Commission to show that the purchasing public, especially the poorer classes, continually lose much by short weight from this practice, and that further powers should be granted by law. This

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is a separate and distinct point now under consideration of the Commission.

2. Both these points will be dealt with by the Commission in their forthcoming Report upon the system of inspection of weights and measures, and it will then remain for the consideration of Her Majesty's Government how far their recommendations upon the whole subject shall be embodied in a Bill and laid before Parliament in the ensuing session.

Oct. 2, 1869. H. W. CHISHOLM.

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57. Suggested sale of coke by weight.

57. *Selling Coke by Weight.*

From Mr. Skinner, Scale and Weight maker, &c.

185, Union Street, Borough,
SIR, November 10, 1869.

I WRITE to you upon a very little considered subject, but still it is a very important one, as the poor are directly imposed on, as I have shown.

When the dealers buy the coke of the gas companies, they buy by the legal shaped heaped measures, but when they sell it, 75 per cent. of them do so with the strike or corn measure. I measured a bushel of coke bought of a dealer near us, and found it would just fill a corn bushel; by arranging a few of the top pieces, a strike would then pass over. I reckon that the dealer has 20 per cent. advantage in quantity by selling by the corn measure; this was measured at twice by the seller with a corn half bushel, and half a shovelful given over after measuring.

I place this in your hand, Sir, to bring before the Commission, or not to do so, as you may think proper. We now sell 20 half bushel corn measures to one proper coke half bushel.

When the Act was passed in 1835 for weighing coal, it was intended coke should be weighed also, but coke was not mentioned in the Act with coal, so the dealers in coke have taken advantage of the omission of the word coke, and have continued to sell it by measure till now as before the Act; only because measuring gives more *facility to practise fraud undetected.* Within these last 15 years, it has become a common practice to use the strike measure instead of the legal heaped measure for coke, which is a *fraudulent proceeding,* as the quantity is so small on a strike measure. They also use the *half bushel* when they ought to use the *bushel,* and that gives the opportunity of twice repeating the trick to each bushel of coke they sell. To remedy these evils a clause in the new Act to forbid the sale of coke by measure would be advisable.

Yours, &c.
H. J. Chaney, Esq. H. SKINNER.

Remarks by the Warden of the Standards.

Sect. 9 of the Act of 1835, 5 & 6 Will. 4. c. 66., enacting that coals should be sold by weight and not by measure, as originally proposed by Lord George Bentinck, and added to the Bill by the Select Committee of the House of Commons, on recommitment, included the sale of "cinders "for burning or coke" by weight and not by measure. But these words were subsequently struck out of the Bill by the House.

There appears to be a conclusive reason why coke should not be sold by weight,—that it will absorb water to the extent of more than one-third of its own weight. Not only would facility thus be afforded to retail dealers to defraud poor purchasers of 25 per cent. of the proper weight of the coke, but the purchasers would also suffer from the coke being thus deteriorated as fuel.

In order to test the weight of water absorbed by coke, three pieces of coke fresh from the retorts were obtained from the Chartered Gas Company's Works at Westminster.

After exposure for some little time to the air the pieces of coke were weighed in the Standards Office; they were then placed in cold water for one minute, taken out and well dried with a cloth, and again weighed, the results of these weighings were as follows:—

	ozs.	dms.
Mean weight of dry coke -	- 10	11
Mean weight of wet coke -	- 14	0
Weight of water absorbed by coke	- 3	5

December 29, 1869. H. W. CHISHOLM.

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58. Short weight; conviction for obtaining money under false pretences.

58. *Selling short Weight, an Offence of obtaining Money under false Pretences.*

From Inspector of Weights and Measures, South Staffordshire.

Goldthorn Hill, Wolverhampton,
SIR, November 10, 1869.

I BEG to enclose a paragraph from the "Wolverhampton Chronicle" of the 3rd inst., relating to the committal for trial of a person for obtaining money under false pretences, and also to state that at the last quarter sessions a person was sentenced to 14 days imprisonment for a similar offence.

I beg to express a belief that if similar proceedings were taken by Inspectors throughout the country a stop would soon be put to the system of short weight.

The fraud in these cases was occasioned either by twisting the chain of the weight pan of the scale over the beam, or by the use of the little finger.

I am, &c.
J. GEO. HORDER,
Inspector of Weights and Measures
H. W. Chisholm, Esq. for South Staffordshire.

Report enclosed of proceedings taken by the Inspector against a confectioner who kept a stall on the wakes ground. He was observed by Mr. Horder to sell half a pound of gingerbread to a customer, who paid for it. Mr. Horder went up, and weighing the gingerbread in the defendant's scales, found it between two and three ounces short of half a pound. The defendant, on the discovery being made, seized the gingerbread and threw it amongst the rest on the stall. He gave a wrong name. He was committed for trial, but admitted to bail.

The Inspector has been requested to give further information of the results of the proceedings.

H. W. C.

Mr. Horder has since forwarded to me a full report of the proceedings in this case, which was heard at the Staffordshire assizes on January 3, 1870. The following is a summary:

The Queen *v.* Ecclestone, for misdemeanor. Mr. Bosanquet for the prosecution. The prisoner defended himself, and pleaded not guilty.

It was shown by the counsel that the charge was for obtaining money under false pretences, by using correct weights and scales in a fraudulent way, so that they appeared to weigh a correct amount when really they were not doing so.

The evidence of Mr. Horder, the Inspector of Weights and Measures, and of Mrs. Roberts, to whom the gingerbread was sold, proved the facts stated above, which occurred at West Bromwich wake, where the prisoner was keeping a stall and selling gingerbread. The prisoner said that Mr. Horder caught hold of the gingerbread and it broke, and did not try the gingerbread by any weight but his own, and did not try those weights, and that it was not his stall.

The prisoner was found guilty. In answer to the chairman, Mr. Horder stated, that he went to the wake on duty for the purpose of watching persons keeping stalls for the sale of small articles. A similar case was brought before the last sessions, and had a very beneficial effect in the district.

The chairman said that the Court entirely concurred in the verdict of the jury. It was absolutely necessary that the public should be protected from petty frauds of this kind. This was the second case which the public officer of the county felt it his duty to be prosecuted, and he hoped it would be the last. Addressing the prisoner, the chairman added that he hoped the sentence he was about to pass would further deter retail dealers, like himself, who went about dealing with poor people. He wished it to be publicly understood that if any other case of the kind were brought forward it would be much more severely dealt with. The sentence he was about to pass upon him was the same as that upon the person convicted at the last sessions. It was that he be imprisoned and kept to hard labour for one calendar month.

H. W. C.

20 January 1870.

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59. Legality of draught in scales.

59. *Question of Legality of Draught in Scales, in favour of the Tradesmen.*

From Inspector of Weights and Measures, Cambridge.

Chesterton Road, Cambridge,
SIR, November 23, 1869.

As I am not aware whether the Standards Commission now sitting is engaged in a scientific inquiry alone,

Appendix VI.—*continued.*

or one including the operation of the present laws in reference to the use of weights and measures, I have, in expectation that the latter comes within the scope of the investigation, taken the liberty to forward for your perusal a local newspaper containing a full report of a trial for libel, but as it embodies the facts of the proceedings against the plaintiff for using unjust scales, I have thought it might not be uninteresting, and as the point in the case against which I contended was one that if permitted would facilitate fraud to an amazing extent, I have a hope that if an opportunity offers you will subject some eminent scale maker to interrogations whether it is the "*custom of the* "*trade*" to manufacture scales so that the shopkeeper may have a "*draught*" in his favour. If you could adopt this suggestion it would place on record an authoritative opinion disclaiming the makers' recognition of so pernicious a system, and relieve them from the imputation of manufacturing balances that might be made so iniquitous a use of. I called on Messrs. De Grave immediately after the trial reported, and they repudiated in the most unreserved way the accuracy of the statement that it was a "*custom of* "*the trade*" to so manufacture scales. I may say, although there was a great deal of questioning as to the length of chains, &c., my proceedings were instituted because the "needle" inclined on the side of the seller, and required the weight I have stated to bring it perpendicular and the beam horizontal.

I have thought also that this occasion may be an opportune one to draw your attention to the use, among publicans and beer sellers, of earthenware mugs as measures, and the immense number which are found deficient in size, and feeling assured that many persons who are fined for possessing them are misled by thinking them accurate on purchase, I venture to suggest that some supervision ought to be exercised over the manufacturer and seller, and that their premises should be liable to the visit of some official, to guard against the dispersion of unjust weights or measures, and the consequent conviction of the trader, in whose possession in many instances they unconsciously fall. I am aware there is a heavy penalty for "*knowingly*" selling unjust weights or scales, but why this word should interpose in favour of this class of trader more than another I have not wisdom enough to conceive. It strikes me that if the manufacturers of weights, measures, &c. (and the sellers likewise) had to be licensed or registered, and their premises were open to visitation, there would be less defective ones sold and the facility for fraud would be considerably circumscribed.

I am, &c.

CHARLES STRETTEN,
Deputy Chief Constable.

H. W. Chisholm, Esq.,
Warden of the Standards.

Memorandum.

The report of the trial was contained in a copy of the *Cambridge Chronicle* of 14th August 1869. It was an action before the Lord Chief Justice for libel for some strongly worded comments upon a grocer who had been convicted by the magistrate of having five pairs of incorrect or unjust scales.

At the trial the evidence given before the magistrate was stated, and further evidence was given at some length upon the question of a draught in tradesmen's scales in favour of the seller.

The Inspector was examined and gave evidence that no draught was allowed by law. One pair of scales used for dry goods had a balance ball, and with it the scales were 2½ drams out of balance, without it, 12 ozs. against the purchaser. Another pair used for weighing butter was 2 drams out. A small pair, used for tobacco, were rather more than ½ dram wrong. Another small pair, used for tea, were not quite ½ dram wrong. The large flour scale was ¼ oz. wrong.

The plaintiff's counsel attributed no blame at all to the Inspector, as he had only done what was his duty. The plaintiff contended that his scales had only the usual draught, such as enabled him to satisfy his customers, who always insisted on seeing the goods scale go down; he thus gave them no more than just weight. The scales which had the draught were counter scales, or scales fixed to the counter, upon which the goods scale always rested when both pans were empty, thus making the draught in favour of the tradesman. In practice it is usual for a weight to be kept in the weight pan, so that this pan rests upon the counter. The smaller scales held up by the hand were accurately balanced and had no draught.

At the close of his evidence, the plaintiff asked how he was to satisfy his customers after the decision of the magistrates, without giving them overweight, but could get no satisfactory answer. The Lord Chief Justice admitted that if there were no draught, a pound of goods would weigh more than a pound. The result of the trial was that upon the defendant disclaiming any imputation on the plaintiff of dishonest practices towards his customers, a nominal verdict was given by consent in the plaintiff's favour.

H. W. C.

Reply of Warden of the Standards.

SIR, 7, Old Palace Yard, November 29, 1869.

I BEG to acknowledge your letter of the 23rd instant, and to thank you for the accompanying report of the trial at Cambridge, in which the subject of unjust scales is involved.

The whole subject of the inspection of weights and measures throughout the country is now under the consideration of the Standards Commission, with a view to its improvement, and much evidence has been given to the Commission involving all the points mentioned in your letter. It is proposed to append a good deal of correspondence relating to the working of the weights and measures laws, in which this correspondence upon the draught of scales may be included.

Upon receiving your letter, I wrote to several of the principal scale makers in London, to ask them if it was, or was not, customary to manufacture scales with a draught in favour of the tradesman who used them, adding that such draught did not appear to be recognized or permitted by the law.

Messrs. De Grave state that they are not aware the trade manufacture scales with a draught in favour of the shopkeeper. It is not their practice. They always send out the scales properly balanced. In their contracts with shopkeepers for keeping their scales in repair, they always state that they cannot be answerable for the draught of the scales, as that must be in the power of the shopkeeper and should be attended to daily. It is on this account that they consider the use of a balance ball to be requisite and necessary.

Messrs. Nicholl and Fowler state that nearly all the scales and weighing machines made and used in the United Kingdom are constructed to indicate a slight draught on the goods side in order to facilitate the weighing.

That the only exception to this rule applies to scales which are held up in the air, or suspended from trigger pillars, and these are made to balance and oscillate freely.

That nearly all the scales used on the continent are made to oscillate in the same manner as our hand scales.

That they have endeavoured to introduce the oscillating scales in this country, but have met with so much opposition from the prejudice of ignorant persons that they have been compelled to abandon them.

Messrs. Vandome state that all shopkeepers' counter scales, which are made to have the weight scale resting on the counter, have a draught allowed. Care is always taken by them that the draught in scales weighing, say, from ¼ lb. to 20 lbs., never exceeds 2 drams; and they test this by placing a 2 dram weight in the weight scale to make it go down. But grocers' hand scales or large scales for heavy weights are made quite equal.

Messrs. W. Smith, of the Borough, state that it has always been the practice for shopkeepers' scales and balances to have a slight draught in their favour, otherwise the shopkeeper would be a loser, as every purchaser expects to see the scale go down.

From Messrs. Young I learn also that it is the general practice for shopkeepers to insist upon their scales being constructed with some draught in their favour, for the same reason.

It is thus clear that although it may not be a universal custom, it is certainly a very general practice for shopkeepers' scales to have a draught in their favour, notwithstanding that the law does not sanction it. The law indeed requires that balances should be exactly equal without draught on either side. Practically, however, this cannot be *strictly* carried out, and so long as the balance is tolerably exact with no more draught in favour of the shopkeeper than makes up for the over full weight which the customer usually requires, it does not appear to me that an Inspector is justified in seizing it as an *unjust* balance.

This is just one of those cases in which, although a hard and fast line may be drawn by the law, it is impossible, without injustice to one party or the other, to carry it out

Appendix VI.—*continued.*

strictly in practice. A shopkeeper who was compelled never to have a draught in his scales against the purchaser, must always give overweight.

There can, I think, be only one way of satisfactorily administering the law. In balances, as in weights and measures, it must be left to the discretion of the Inspector and the magistrate to seize and condemn such as are manifestly unjust or fraudulent. The nature and amount of inaccuracy or defect showing that they are unjust or fraudulent must depend upon the circumstances of each case.

The question of an allowance for draught in shopkeepers' scales appears to be involved in the question whether any allowance of error should be tolerated by authority in tradesmen's weights and measures, and this is a point which has been referred to the consideration of the Standards Commission. The evidence of practical persons is entirely against any such allowance. It is a very different question from allowing a certain amount of variation in the comparison of standards themselves, and can be obtained by the mode of comparison. In my judgment, it would be inexpedient to lay down any authoritative rule for allowing any stated amount of inaccuracy in a tradesman's weights, measures, or balances.

The expediency of issuing official instructions for Inspectors of Weights and Measures for the more uniform and satisfactory performance of their duties, another point referred to the Commission and now under consideration, and will in all probability be recommended by them and sanctioned by law. In such instructions, the mode in which slight inaccuracies may be practically dealt with can thus be indicated.

I send herewith for your information copies of some printed papers (III., 1–v) containing cases illustrating the working of the weights and measures laws. In III.–v., p. 8, you will find some correspondence on the gross and net weight in selling sugar. It is proposed to append these papers to the forthcoming Report of the Commission, upon the subject of the Local Inspection of Weights and Measures.

I am, &c.
H. W. Chisholm,
Warden of the Standards.

The Deputy Chief Constable,
County of Cambridge.

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60. Practice of inspection in Staffordshire; suggested improvements in general system of inspection.

60. *Practice of Inspection of Weights and Measures in Staffordshire; Suggestions for Improvements in general system of Inspection.*

From Inspector of Weights, &c., Staffordshire.

Goldthorn Hill, Wolverhampton,
Sir, December 16, 1869.

Some time since the Secretary to the Standards Commission kindly furnished me with some of the printed papers relating to the existing system of inspection of weights and measures, and invited me to forward you any remarks or suggestions which might occur to the Inspectors of this county upon them. I have therefore perused them with Mr. Richards and Mr. Knight, the other Inspectors of Weights and Measures, and beg to transmit the following remarks, in which they concur.

As Staffordshire is not included in the statistics given in the summary of abstracts of returns from Inspectors of Weights and Measures for the year 1866, the following information is respectfully submitted:—

For the inspection of weights and measures the county is divided into three districts, which are coterminous with the coroner's districts.

There is one Inspector and one assistant to each district, who devote the whole of their time to their duties of inspecting, stamping, and adjusting. An additional assistant is employed, when necessary, for adjusting.

Each Inspector is bound in the sum of 200*l.* for the care of the standards and due performance of his duties, and receives a salary, now, of 160*l.* per annum, out of which he has to provide and keep a horse and cart to convey the weights, &c. about his district. He is also allowed 5*s.* per day for expenses when away from home upon duty.

Enclosed is (A.) a list of fees charged, together with (B.) a form of certificate given by the Inspectors.

All fees received for stamping and adjusting and fines are paid quarterly to the county treasurer, and an account of the same is rendered quarterly to the Finance Committee, according to the appended Forms (C.), (D.), and (E.).

All weights adjusted are re-stamped, but no weight bearing the stamp of another county is re-stamped unless adjusted.

As the late Inspector for district C. was ill during a great part of the year 1866, the return already forwarded does not quite represent the receipts, &c. of that district; the following statement is therefore submitted for the year ending October 1869:—

	£	s.	d.	£	s.	d.
District A. - -	167	17	8	194	15	0
District B. - -	122	12	0	53	1	5½
District C. - -	212	13	3	495	15	4½
Salaries of Inspectors, at 160*l.* per annum	480	0	0	—		
	£983	2	11	743	11	10

The number of convictions during the year, to October 1869, were,—

District A. - -	89	401
District B. - -	52	
District C. - -	260	

The difference in the figures in the respective districts is attributable naturally to the extent and population of each district, and not to the anxiety of one Inspector to show a greater balance in favour of the county than his brother Inspectors; the salary of each Inspector being the same, no such reason exists.

Bilston Market and Burslem, which are included in the list of places from which no returns have been stated to have been received, are included in the county Inspectors' returns.

With reference to the proposed revision of the duties of Inspectors of Weights and Measures, the Inspectors of this county are of opinion that a separate system of verification and inspection will be practically found to work less efficiently than the present system as carried out in Staffordshire; and that whatever additional officers it may be considered advisable to appoint, they should be subordinate to the verifier, who should be also chief Inspector.

At present the Inspectors keep a register of the shopkeepers in each district, and by comparing the receipt book with the register a check is kept upon those persons who do not send their weights regularly for adjustment. As the proposed new officer would have to apply from time to time to the "verifier" and would have to act to a certain extent upon information obtained from him, and as the issuing of summonses and prosecuting the same require a great amount of care and consideration, and is considered by us to be a most responsible part of our duties, we submit that a person appointed as Inspector only should be under the direction of a superior officer.

At present shopkeepers are recommended to send their weights for examination three times a year; but proceedings are not taken against persons who have sent their weights within twelve months, unless there are special circumstances in the case.

The use of a stamp for each year has been found to be a good means of identifying the weights which have been sent for examination, but no charge is made for stamping a weight merely for the purpose of identifying it.

With reference to the adjusting of weights by Inspectors or "verifiers," it is believed that in addition to the benefit afforded to the county, the convenience of shopkeepers is consulted by the present mode of adjusting, and that great inconvenience would arise if some authorized person were not appointed for the purpose of adjusting weights.

The fact of the fees for adjusting varying in different counties has been found a cause of dissatisfaction.

It is also respectfully suggested that patterns of all weights, scales, balances, &c. should be submitted for the approval of some proper authority before they shall be legal.

Great uncertainty exists as to the result of proceedings against persons for unjust measures, and it is suggested that all vessels used as measures, in public houses or elsewhere, should have their capacity marked upon them.

The 38-quart measure and weights above 56 lb., also the weights used upon the multiplying beam machines should, we think, so long as they are allowed to be used, be subject to inspection.

Under the existing law an Inspector is not required to inspect any weight above 56 lb.

It is also suggested that Inspectors (verifiers) should be authorized to destroy any weight which (when brought for examination) is deemed by them to be unfit for further adjustment.

It is believed that the proposed authority to the Inspectors to inspect parcels of goods weighed up for sale would be very effective; but a difficulty might arise with reference

Appendix VI.—*continued.*

to such articles as sugar, soap, rice, &c. It should be made clear as to whether the articles are to be net weight without paper.

Would it not be desirable to prohibit the sale of any unstamped weight?

With reference to the penalties to be imposed for defective weights, &c., the following statement may be useful:—

Number of summonses issued in district C. during the quarter ending October 1868 -	200			
Amount of fines imposed -		£ 87	s. 1	d. 0
Number of summonses issued during the quarter ending October 1869 in the same district - - - -	47			
Amount of fines imposed -		74	5	6

The same number of days were employed in inspecting during each of the quarters referred to, and the diminution in the number of summonses issued is attributed by the Inspector to the fact that heavier fines were imposed by the magistrates during the quarters ending December, March, and June than had been the case previously.

I am, &c.
J. Geo. Horder,
Inspector of Weights and Measures for South Staffordshire.

H. W. Chisholm, Esq.

Enclosures.

(A.) Fees to be taken for adjusting Weights and Measures.

——	Adjusting.	Stamping.
	s. d.	s. d.
56 lb. weights (iron) -	0 4	0 3
28 lb. ditto ditto -	0 3	0 2
14 lb. ditto ditto -	0 2	0 1
7 lb. ditto and all under.	0 2	0 0½

Additional charges for extra quantities of lead.

——	Adjusting.	Stamping.
	s. d.	s. d.
56 lb. weights (brass) -	0 4	0 9
28 lb. ditto ditto -	0 4	0 6
14 lb. ditto ditto -	0 2	0 4
7 lb. to 1 lb. weights -	0 2	0 1
½ lb. and all under -	0 0	0 0½

——	Marking Contents or Adjusting.	Stamping.
	s. d.	s. d.
Bushel measures -	0 3	0 3
Half-bushel ditto -	0 3	0 2
Peck and all under -	0 2	0 1
Yard - - -	0 1	0 0½

——	Marking Contents or Adjusting.	Stamping.
	s. d.	s. d.
5 gallons - - -	0 4	1 0
4 ditto - - -	0 4	0 9
2 ditto - - -	0 4	0 4
1 ditto - - -	0 4	0 2
½ ditto - - -	0 4	0 1
Quart and all under -	0 1	0 0½

Additional charges for extra work or materials, and for examining or adjusting scales, steelyards, or other measures not mentioned in the foregoing scale.

(B.) Form of Certificate.

I certify that the weights and measures, as stated in the margin, belonging to have been examined, adjusted, and stamped by me this day.

Fees paid for adjusting

„ paid for stamping

(C.) Form of Account of Fines.

Weights and Measures.

District

Return of Fines imposed during the Quarter ending

Names of Defendants.	Names of Justices before whom Summons is heard.	Amount of Fine.

(D.) Form of Ledger.

Date.	Name.	Occupation.	Residence.	Weights stamped.					Wooden Measures.				Liquid Measures.							Fees received for adjusting.	Fees received for stamping.
				56 lb.	28 lb.	14 lb.	Under 14 lb.	Set of 1 lb. and less.	Bushel.	½ Bushel.	Peck.	Yard.	5 Gallons.	4 Gallons.	3 Gallons.	2 Gallons.	1 Gallon.	½ Gallon.	Quart and under.		
				3d.	2d.	1d.	½d.	2d.	3d.	2d.	1d.	½d.	1s.	9d.	6d.	4d.	2d.	1d.	½d.	£ s. d.	£ s. d.

Appendix VI.—*continued.*

(E.) Form of Return of Expenses and of Fees. Weights and Measures.

District

Return of Expenses incurred and Fees received by Inspector, during the Quarter ending 18 .

Date.	——	Expenses incurred.	Fees received.

61. Inspection of large weighing machines.

61. *Inspection of large Weighing Machines.*

From Messrs. Pooley and Sons.

Sir, Albion Foundry, Liverpool, Dec. 28, 1869.

Alluding to the interview I had with you at your office on the 16th instant, I enclose for you a copy of the decision given February 17, 1862, in the case of the Lichfield Station weighbridge, in which, in connexion with the London and North-western Railway Company, my firm was interested.

The extract is taken from the Queen's Bench Reports, Hilary Term 1862, and is interesting as a decision, as well as to show the necessity which still exists for a better educated class of county Inspectors of Weights and Measures, and the need of a comprehensive code of clear instructions for their guidance in the performance of their various duties.

"Queen's Bench Reports, Monday, February 17, 1862.

"The London and North-western Railway Company, Appellants.—Richards, Respondent.

"This was an appeal against a conviction, by two justices of the county of Stafford, of the London and North-western Company for unlawfully having in their possession on the 16th July 1860, at the Lichfield Station of the said railway, a weighing machine used for the weighing of goods for conveyance on the railway, which was, upon examination thereof duly made by the Inspector of Weights and Measures, found to be incorrect, to wit, 21 lbs. weight out of balance with the imperial standard weight, contrary to the form of the Statute in that case made and provided, stat. 5 & 6 Will. 4. c. 63. s. 28. The sessions confirmed the conviction, subject to the opinion of this Court upon the following case:—

"Wightman, J. I am of opinion that the conviction cannot be supported. The weighing machine before adjustment is false, but in the true state of adjustment for weighing it is correct. It is too much to say that because the machine requires adjustment before it is used it is an incorrect or otherwise unjust machine.

"Crompton, J. (the only other judge present). The conviction of the defendants is for having a weighing machine which upon the examination made by the Inspector was found to be incorrect because it was not adjusted. It cannot therefore be said to be incorrect for the purpose of weighing because it is found in a state in which it would not be used for weighing. In the ordinary case of a false steelyard there is an additional weight on the false arm; in this case an inaccuracy in the machine which may have been occasioned by atmospheric influence is to be corrected, *and the great beauty of the machine is that when an inaccuracy may, or rather must constantly occur, the machine has in itself an appliance by which that inaccuracy may be remedied.* Unless that appliance, which is an integral part of the machine, is used, the instrument cannot be said to be properly tested, any more than you could say that a telescope gave an improper result if you did not draw it out so as to get the right focal distance before using it.

"*Order of Session quashed.*"

I still think that the French system of "tolerance" in weighing apparatus is a very good and just provision, for it would save the small country dealers especially from annoyance and persecution on the part of Inspectors, who for some personal reasons might be disposed to take advantage of the law requiring exact accuracy, say in a large weighbridge of 10 tons capacity used only for weighing coals. In any new Act there should be, in my opinion, a distinction drawn between mathematical accuracy and the accuracy which by common consent is considered sufficient for the ordinary daily transactions of buying and selling between business people.

I am preparing for you, and which I hope you will accept, a copy of the iron 56 lbs. weight, which is in use in these works; it is what experience has taught us is the best form of weight for ordinary purposes; there are no sharp angles, or other points, which are liable to loss by fracture or abrasion.

If you have space for it, I will also send you an example of the smallest commercial weighing machine made here. I noticed in one of your rooms a French "bascule;" I think when you examine ours you will say that the English scale is, at least, equal to its foreign brother in workmanship and design. I now send you by post a copy of our Catalogue of Weighing Apparatus, which be so good as to accept.

I am, &c.

H. W. Chisholm, Esq. Henry Pooley.

62. Insufficient offices of inspection at Westminster.

62. *Insufficient Accommodation for Verification and Inspection of Weights and Measures at Westminster.*

Note.—On 11th August 1869 (as appears by the Minutes of proceedings, s. 13.), the Standards Commission inspected the office of the Stamper and Inspector of Weights and Measures for the city and liberty of Westminster, which is in a vault under part of the Court House at Westminster, and found the premises wholly insufficient for the purpose, and in a discreditable state.

The Chairman of the Commission accordingly communicated unofficially on 7th September with Mr. Miller, the Deputy High Steward of the city of Westminster, to draw his attention to the subject with the view of remedying the defects.

In a reply from Mr. Miller, dated 24th September, he stated that the matter would be brought under the notice of the Court of Burgesses, under whose authority the inspection of weights and measures is placed, at their next meeting, in order that steps might be taken for effecting the requisite improvements.

The Deputy High Steward of Westminster to the Chairman of the Board of Middlesex Magistrates.

No. 4, King Street, St. James's Square, S.W.

Sir, December 8, 1869.

I have reported to the Court of Burgesses that you have been so good, accompanied by the County Surveyor, as to meet the chief and several other burgesses and myself at the Court House, Westminster, to inspect the office where the business of sizing and stamping weights and measures for the city of Westminster is transacted, and to consider a complaint which the Astronomer Royal as chairman of the Royal Commission on Standards has made respecting it.

There can be no doubt that the place is defective and insufficient, but it is considered that suitable accommodation may be provided by improving its light and ventilation, and flooring, and by constructing a small waiting room, and the Court of Burgesses is desirous that the attention of the magistrates of the county of Middlesex should be called to the subject, and also to the enactments relating to the Court House under which it is hoped that the magistrates will recognise it to be within their powers and functions to cause the requisite accommodation to be provided.

The Act of the 18 Geo. 3. c. 72. authorizes Commissioners thereby appointed to purchase land, which it directs to be conveyed and assured to the Dean of Westminster for the time being, and his successors in trust, to permit the building of a Court House with proper offices and apartments thereon for the purposes therein-after mentioned. And it enacts that when the ground is purchased it should be lawful for the Commissioners to cause a Court House with proper apartments and offices to be erected, of such dimensions as the Commissioners should judge necessary and convenient for holding the Courts, and exercising the jurisdiction of the said Dean and Chapter, and for holding the Quarter Sessions of the Peace, and transacting the other public business of the city and liberty of Westminster, and to cause the same to be fitted up with necessary accommodations in such manner as they should think proper, and to defray the expense thereof out of the money to be raised and received as therein-after mentioned.

Appendix VI.—*continued.*

And it enacts that when the said Court House should be built and fitted up with necessary accommodations, the same should be from time to time for ever after repaired, supported, and maintained, and provided with proper and necessary accommodations by the order and direction of the Dean, High Steward, and Custos Rotulorum of the said city and liberty for the time being, or any two of them, and that the expense thereof and other expenses therein mentioned should be from time to time defrayed out of the money arising by the general rates and assessments which should be laid and assessed in and upon the said city and liberty and the county of Middlesex by force and virtue of an Act of Parliament made in the 12th year of the reign of his late Majesty, entitled An Act for the more easy assessing, collecting, and levying of county rates.

And it was further enacted, that as soon as the said Court House should be built, fitted up, and properly accommodated pursuant to the directions of the Act, the said Court House and the apartments and offices thereto belonging, and the materials of which the same should consist, and all things thereunto belonging, should from thenceforth be, and the same are thereby vested in the said Dean for the time being, and his successors in trust, nevertheless to permit and suffer the same to be made use of for holding the Courts and exercising the jurisdiction of the said Dean and Chapter, and for holding the Quarter Sessions of the Peace, and transacting the other public business of the said city and liberty, and that the said Court House and the apartments and offices thereto belonging, and the materials thereof should from thenceforth be under the sole direction and management of the said Dean, and of the High Steward and Custos Rotulorum of the said city and liberty for the time being, or any two of them, for the uses and purposes aforesaid.

The Dean of Westminster is the head of the Court of Burgesses, and among the Commissioners appointed by the above mentioned Act of Parliament to erect the Court House with proper offices and apartments, were the Dean, the High Steward, the Deputy High Steward, and the two chief burgesses for the time being, and after the erection thereof they were to be under the direction and management of the Dean, the High Steward, and the Custos Rotulorum of Westminster, or any two of them, for the uses and purposes aforesaid, and it can hardly be doubted that if the last named officers retained the powers conferred upon them, they would cause the necessary accommodation to be provided for transacting the business of the sizing and stamping office, *but by subsequent Acts of Parliament the control and management of the premises are now vested in the magistrates of the county of Middlesex.* I venture, however, to submit that the uses and purposes for which the premises were erected and are held in trust remain the same, and that among those uses and purposes is comprised the providing of proper and necessary accommodation for stamping and sizing weights and measures in Westminster, and this conclusion receives confirmation from the fact (which I understand is the case) that this business has been transacted there ever since the building was erected.

I therefore on behalf of the Court of Burgesses respectfully request that the magistrates of Middlesex will please to take the matter into their consideration and to cause the works above specified to be done, the purpose for which they are required being within the uses and purposes contemplated by the Act of Parliament.

I have, &c.
(Signed) S. F. Miller,
Deputy High Steward of Westminster.

To Henry Pownall, Esq.,
&c. &c. &c.

From the Chairman of the Board of Middlesex Magistrates, in reply.

63, Russell Square,
My dear Sir, December 10, 1869.

I have the pleasure of acknowledging your favor of yesterday and will take an early opportunity of placing the memorial from the Court of Burgesses of Westminster before the magistrates and remain

Faithfully yours,
S. F. Miller, Esq. (Signed) Henry Pownall.

In the meantime, the wholly insufficient accommodation of the existing offices of the County Inspectors of Weights and Measures having been brought under the notice of the Middlesex Magistrates, they passed a resolution on 19th November 1869, that proper and convenient offices should be provided, at the cost of the county, and appoint a subcommittee of magistrates to carry this resolution into effect. The first step taken by the committee, was to communicate with the Warden of the Standards, but upon ascertaining that important changes in the system and districts of inspection were contemplated, it was considered by them that it was not desirable to take any further proceedings for improving the office accommodation, until Parliament had determined what change should be made in the present system and practice of inspection.

From the Deputy Clerk of the Peace for Middlesex, in continuation.

Sessions House, Clerkenwell,
Sir, February 8, 1870.

I am directed to inform you that the Chairman of the Court laid your memorial relating to the insufficiency of your office for weights and measures before the Court, but the magistrates are desirous that the matter should stand over for the present, as important questions on the subject are expected to be laid before Parliament this session.

I am, &c.
(Signed) Wm. Francis,
S. F. Miller, Esq., Deputy Clerk of the Peace.
Deputy High Steward of Westminster.

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63. *Verification and Stamping of graduated Liquid Measures made partly of Glass and partly of Metal.*

63. Verification and stamping of graduated liquid measures, partly of glass and of brass.

From Inspector of Weights and Measures, Middlesex.

District No. 3, Middlesex Station,
for Stamping Weights and Measures,
41, Museum Street, Bloomsbury,
Sir, March 9, 1870.

I have been applied to by the agent of M. M. De Goene to know if graduated glass measures of the description contained in the enclosed circular for measuring petroleum and liquids of a like nature can be stamped and used as legal measures in this country, as I cannot find any provision in the Acts of Parliament that relate to measures, with the exception as to stamping measures partly made of glass and metal (viz., in the 22 & 23 Vict. c. 56. s. 5), I beg to apply to you for any information you can favour me with on the subject that will enable me to give a decisive answer as to the measures in question, as they appear to me to be made larger than the standard, although proposed to be graduated as quart, pint, and half-pint, and intended to be fixtures, which might be difficult to inspect when in use if they could be stamped.

I have, &c.
Edwd. Morrison,
Inspector.

H. W. Chisholm, Esq.,
Warden of the Standards,
7, Old Palace Yard.

From Warden of the Standards, in reply.

7, Old Palace Yard,
Sir, March 10, 1870.

It is very desirable that measuring instruments such as that to which you have called my attention in your letter of yesterday's date should be recognised by the law for public use. I am now taking steps to have constructed for this department graduated glass measures and a delivering apparatus somewhat similar to that of Messrs. De Goene, and of standard accuracy.

It appears to me that under s. 5. of 22 & 23 Vict. c. 56. you are not only authorised, but it is your duty to stamp all such measures, partly of glass and partly of metal, if you find them to be correct.

Your application is one of many which show the necessity of full authoritative directions being issued to Inspectors of Weights and Measures for the proper and uniform discharge of their duties. In such directions it should be pointed out that there is a difference between a measure *holding* a certain quantity, and a measure *delivering* the same quantity of liquid.

Appendix VI.—*continued.*

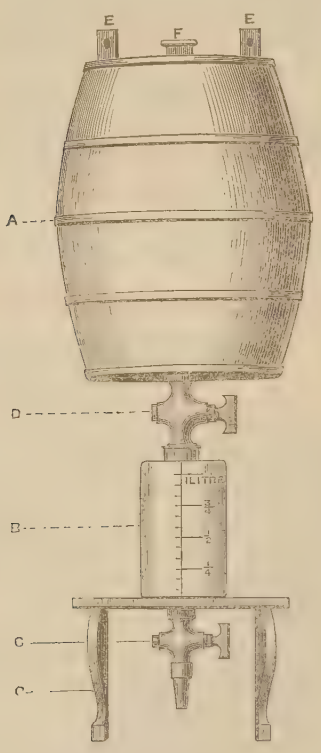
In liquid measures connected with a delivering apparatus the Inspector should see that they *deliver* the stated quantity.

I am, &c.

Mr. E. Morrison, H. W. Chisholm.
Inspector of Weights and Measures, &c.

Note.—The agent of Messrs. Goene subsequently attended at the Standards Department, to explain the construction of this measuring apparatus. He was informed, that although the measure might be graduated into subdivisions, it must be marked only with denominations legalized in this country, and must also be furnished with a suitable piece of metal for receiving the stamp of verification, so that neither the stamp nor the measure could be tampered with.

Réservoir-fontaine ou Mesureuse de Sûreté de Goene frères, fabricants brevetés, pour le débit de tous les liquides et spécialement des Essences et Huiles Volatiles (Pétrole, Térébenthine, etc.)



Tout le monde connaît les inconvénients, et aussi les dangers qui résultent quelquefois, du système de débit actuel des liquides, au moyen de mesures et d'entonnoirs; la *Mesureuse de sûreté* supplée à ces inconvénients.

Cet appareil, très-simple d'ailleurs, consiste :

1°. En un réservoir A, ordinairement en métal et de n'importe quelle forme; hermétiquement fermé si l'évaporation doit être supprimée; muni de deux oreilles E pour le suspendre, d'un entonnoir F pour l'introduction du liquide et d'un flotteur pour indiquer le moment où le réservoir est rempli.

2°. En une Mesureuse cylindrique B, en verre clair, munie de 2 robinets dont l'un D, soudé au réservoir A, sert au soutirage du liquide et dont l'autre C, sert à son écoulement. La contenance de la Mesureuse est d'un litre et est marquée sur une échelle décimale gravée sur le verre.

On remplit le réservoir au moment de la journée qui semble le plus convenable à cet effet.

Pour se servir de l'appareil, on ouvre le robinet D et on le referme quand le niveau du liquide atteint dans la Mesureuse B, le degré de l'échelle indiquant la quantité demandée. On débite alors le liquide, en ouvrant le robinet C, qui se termine en pointe comme un entonnoir.

Ce système de mesurage permet de débiter les liquides sans les mettre en contact avec l'air extérieur; il en résulte les avantages suivants :

1° Absence de tout danger d'inflammation par l'approche de la lumière ou d'un corps en ignition.

2° Suppression des mesures, entonnoirs et égouttoirs.

3° Propreté, facilité, économie et salubrité.

Propreté, parce qu'il n'y a plus de liquide répandu; facilité par la rapidité du débit; économie et salubrité, parce que l'évaporation est supprimée.

Les Mesureuses de sûreté sont destinées aux épiciers, aux droguistes, aux débitants de pétrole, de térébenthine et d'huiles ordinaires; elles peuvent aussi être appliquées à une foule d'autres industries.

Les réservoirs déjà existants peuvent être employés dans la plupart des cas : on n'a qu'à y ajouter la Mesureuse munie de ses deux robinets.

Les magasins qui ont adopté ce système, sont seuls affranchis de l'odeur désagréable produite par l'évaporation.

Le prix des appareils diffère seulement d'après les réservoirs; la Mesureuse et ses robinets étant toujours du même modèle.

Dimensions des Réservoirs.			Contenance en Litres.	Forme des Réservoirs.	Prix.
Hr.	L.	Pr.			Fr.
0,55	0,40	0,23	25	Cartel ou console, zinc, peint -	46
0,65	0,55	0,30	50	„ „ „ -	54
0,55	0,40	0,23	25	Tonnelet coupé, „ „ -	40
0,65	0,55	0,30	50	„ „ „ -	46
0,45	0,32	0,21	25	Coins arrondis, fer-blanc, peint	34
0,55	0,38	0,25	50	„ „ „	37
0,40	0,35	0,20	25	Bac carré „ non peint	30
0,50	0,40	0,25	50	„ „ „	35

Les prix ci-dessus comprennent la console en bois G sur laquelle repose la Mesureuse.

Pour les réservoirs différant de modèle, de dimension ou de matière les prix seront à convenir.

S'adresser pour tous renseignements et pour les commandes à MM. De Coene, Frères, Fabricants, Rue de la Paix, 33. Ixelles.

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64. *Adulteration of Bread, &c.—Memorandum of Warden of the Standards, containing information relating to proceedings against Offenders taken by the Inspector of Weights and Measures for West Middlesex, &c.*

64. Adulteration of bread, &c. Proceedings against offenders taken by Inspector for West Middlesex, &c.

The following information relating to proceedings taken by an Inspector of Weights and Measures to carry out the law for detecting and punishing adulterations of bread, has been taken from the printed reports communicated to the Standards Department by Mr. Gregg, the Inspector of West Middlesex.

The first proceedings were taken by Mr. Gregg in 1857, on the suggestion of one of the magistrates, and not by order of the magistrates in sessions. In every case, adulterating ingredients were found. In March and April 1861, several bakers in his district were summoned by Mr. Gregg before the magistrates in petty sessions, under the Act 6 & 7 Will. 4. c. 106., for the offences of adulterating bread and having in their possession ingredients for the purposes of adulterating meal, flour, or bread.

Upon the first day, when the charges of adulterating bread were heard, Mr. Gregg proved that he employed a man to purchase at each shop two loaves, which were ticketed and placed in a bag. In each case he sealed up the two loaves and delivered them two days afterwards to Dr. Normanby to be analysed, the charge for the analysis alone being two guineas. In the first case, upon receiving Dr. Normanby's report, Mr. Gregg searched the defendant's premises under a magistrate's warrant, but did not find any alum or anything used to adulterate bread.

Dr. Normanby proved that on analysing a portion of the bread, he found a small quantity of alum in it.

A solicitor appeared for the defendant, and brought forward the evidence of two men employed by him, who said that they made all the bread sold by the defendant, but that no alum was used. It was admitted that bakers used alum, in the proportion of about half an ounce to the bushel of flour, to clear the loaf and improve the look of bread made with inferior flour.

In this case, and in each of two others which were similar, the magistrates convicted and imposed a fine of 5*l.*, and costs 4*l.* 16*s.* 6*d.* In a fourth case a fine of 5*l.* was inflicted, and 5*l.* 13*s.* costs.

Appendix VI.—*continued.*

Upon another occasion, bakers were charged with having ingredients of adulteration in their possession. The first summons was against a baker for having in his bakehouse yellow ochre, salts of ammonia, cream of tartar, and eight other ingredients, contrary to the Act; and Mr. Gregg proved that he found these ingredients upon searching under the authority of a warrant, and he believed them to be there for the purpose of adulterating either flour or bread. He delivered these articles to Dr. Normanby, who selected the yellow ochre for analysing.

Dr. Normanby proved that on analysing the yellow ochre he found it to contain *chromate of lead*, being a dangerous poison, and that in fact there are numerous cases on record of persons having been injured by it.* He thought it might be used for imparting a rich colour and appearance to any matter it was used with, and he was sorry to say he believed it was used to a lamentable extent by confectioners.

He had found so small a portion of alum in the defendant's bread that he advised Mr. Gregg to withdraw the summons. He never knew the chromate of lead to be used for bread, but it was largely used for buns and confectionery, and he really could not name any quantity which would not be injurious.

The solicitor for the defendant contended that there was no case against his client, as the Act related only to bread, and buns were not bread; but the magistrates did not agree to this construction of the Act, the provisions of which were also applicable to meal and flour. The solicitor added that he could not see any impropriety in the use of any of the ingredients found when they were used for making buns or other fancy articles; in fact, he did not think these kinds of articles could be made without them.

Three witnesses were called on the part of the defendant to prove that these ingredients were not used for bread or buns, but for confectionery. A journeyman in his employ said that several of the ingredients must be used in the making of biscuits, cakes, &c. He believed they could not be made without them, and his experience had been derived in several situations. Another witness, who was a baker, admitted that he had seen the yellow stuff used for the purpose of washing buns to colour them.

The defendant was convicted and fined 5*l.*, with 5*l.* 1*s.* costs.

The second case was against a baker, who was one of the persons previously fined for adulterating bread, and was also charged with having on his premises five ingredients for adulteration, viz., alum, ammonia, carbonate of soda, tartaric acid, and American ash, which was proved by Mr. Gregg.

Dr. Normanby proved one of the parcels to contain lumps of crystalised alum.

The defendant's solicitor stated that the alum was used with potash for thinning treacle, for the purpose of making gingerbread and other fancy cakes, and not for adulterating bread. Dr. Normanby said that such gingerbread was most villainous stuff, and very injurious to children.

The defendant was convicted by the magistrates of the second offence, and fined 4*l.*, and 4*l.* 13*s.* costs.

Dr. Normanby informed the magistrates that on former occasions, in 100 samples of bread brought to him out of this district by Mr. Gregg, the per-centage adulterated was something considerable, in fact, nearly all were adulterated; but it was gratifying to find that, owing no doubt to occasional supervision, out of 20 cases brought to him within the last month, only one was adulterated. He explained that the analysis of bread was a very tedious process, and took nearly two days to complete.

It should be observed that when the duty of detecting and laying informations against offences of adulterating bread, &c. is imposed upon the Inspector of Weights and Measures, and where, under the existing system of inspection, as in the county of Middlesex, the only remuneration for discharging the duty is by allowing the inspector half the fines, it must be a matter of speculation whether he gains or loses by proceeding in any one case; and it is not to be expected that the existing provisions of law against adulteration can be carried out to any extent.

Mr. Gregg states that in the first series of proceedings, though he incurred an outlay for costs to the amount of nearly 100*l.*, yet, as there were about 20 convictions, not only was this outlay repaid to him, but the receipt of half the penalties, amounting to nearly 50*l.*, well repaid him for his labours and responsibility. On the second occasion, although he incurred all the costs for getting up 20 cases, he succeeded in obtaining only one conviction, and was consequently considerably out of pocket. On a third and later occasion he also succeeded in obtaining several convictions, by the magistrates at Petty sessions, of bakers at Uxbridge; but an appeal was carried to the Quarter sessions by the bakers, who employed an eminent counsel. A technical objection was raised by him against the informations on the ground that the offences were stated to have occurred merely in the "town of Uxbridge," the words "in the county of Middlesex" being omitted. This object was held by the Bench to be fatal, and the convictions were quashed. The whole of the costs consequently fell upon the inspector, and he has since declined to take any proceedings against bakers unless he is indemnified against loss.

The following further information relating to the adulteration of bread is taken from Dr. Parkes' Manual of "Practical Hygiene," (London, 1869,) p. 221, &c.

Alum is not much used except with inferior bread (see Report on Journeyman Bakers, 1862, p. 164). The amount of alum in bread is said to be, on an average, 3 oz. to a sack, or 280 lbs. of flour; if the sack gives 105 4 lb. loaves, there will be 16 grains in a 4 lb. loaf. Dr. Hassall, who found alum in half the loaves examined, states the quantity to be ½ lb. (8 ozs.) to 240 lbs. of flour, but that it differs for old and new flour. A very good witness in the inquiry into the grievances of the journeyman bakers gave the quantity at 10 ozs. per sack; this would give 41·6 grains per 4 lb. loaf (Report on Journeyman Bakers, 1862, p. 163). Some of the statements are beyond even this amount, viz., 1 to 4 lbs. per 1,000 loaves, but such is probably an exaggeration.

Alum is the substance chiefly used for adulterating bread. There has been much difference of opinion as to its effects. It has been asserted to produce dyspepsia, to lessen the nutritive value of bread by rendering the phosphaic acid insoluble, and to be also a falsification, inasmuch as it permits an inferior flour to be sold for a good one. The last allegation is no doubt correct, the second probably so, as there is little doubt of the formation, and none of the insolubility of phosphate of alumina. The first point is more doubtful, though several physicians of great authority (Carpenter, Dundas, Thompson, Gibbon, Normanby,) have considered its action very deleterious. Dr. Parkes thinks it extremely likely that strongly alumed bread does produce the injurious effects ascribed to it.

H. W. Chisholm,
Warden.

Standards Office,
18th May 1870.

* An article in the "Food Journal" of this year (1870) states,—"We "have received from Cheltenham a sample of sugar so fearfully adulte- "rated with chromate of lead, that we wonder how any of the unfortu- "nate partakers of it survived to tell the tale. The sugar in question "appears to be what is known in the trade as 'pieces,' to which the "chromate of lead has apparently been added with the intention of "bringing up the inferior article to the appearance of the best Deme- "rara."

APPENDIX VII.

Paper delivered by the Warden of the Standards.—On the Working of the Sale of Gas Acts and Verification and Inspection of Gas Meters.

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I. *Memorandum by Mr. Chaney, on the Testing of the Registering Apparatus or Indices of Gas Meters.*

November 2nd, 1869.

The importance of testing the indices of gas meters, as well as the measuring part of meters, was strongly urged by the Astronomer Royal in 1860, as will be presently shown, but no practical steps have been hitherto taken for affecting this object.

The present system of testing gas meters enables any person to construct a gas meter which may register 20 or 30 per cent. or other quantity in his favour, and to have such a meter passed and stamped as correct by the Inspector of gas meters.

The rules for testing meters, laid down in section 13. of the Sale of Gas Act, 1859 (22 & 23 Vict. c. 66.), are sufficient for the purpose for which they were intended, viz., the verification of the *measuring* part of a gas meter, except at high pressures and slow speed. But these regulations have not been considered by the Inspectors of Gas Meters as providing for the testing of the *registering* apparatus or index of a meter, by which fraud may be easily perpetrated. It is, therefore, proposed:—

1. That the index and registering apparatus of every gas meter used for the sale of gas should be examined and stamped, if correct, by the Inspector of Gas Meters.

2. Before fitting the index and registering apparatus to a meter the maker of the meter should send the index and apparatus to the Inspector of Meters to be examined and stamped.

3. The Inspector of Meters should ascertain,—

(*a*.) That the index has upon it a dial for registering volumes of gas, from 0 to 10 cubic feet.

(*b*.) That the index has marked on it the size of the meter, (both capacity and rate per hour) to which the index is to be fitted.

(*c*.) That the index has marked on it the quantity of gas measured by *one* operation or revolution of its diaphragms or drum, and its rate per hour.

4. The Inspector should affix his stamp to such parts of the index as will be distinctly visible to him when the meter, to which the index is to be fitted, is afterwards submitted to him to be tested, and so as to prevent the index being tampered with without breaking the seals.

5. That a small fee (2*d*.) should be paid to the Inspector for every index examined by him.

The following statement of the difference between the measuring and registering parts of a gas meter, and the present method of testing meters, may explain the necessity for testing the index and registering apparatus of gas meters.

The two kinds of gas meters, known in the trade as *wet* meters and *dry* meters, are each composed of two parts, viz.:—

1. The measuring apparatus.
2. The registering apparatus.

1. In *dry* meters the *measuring* apparatus is usually termed by meter makers the "diaphragm." It may perhaps be more properly called the diaphragm chamber. This diaphragm chamber, or elastic bag, is of leather and other material, capable, when expanded or opened, of containing a known volume of gas. When the diaphragm chamber is expanded the gas has entered into it from an inlet pipe, and when it is closed or collapsed the gas has been forced out. The opening and closing of the diaphragm chamber is so effected by self-acting machinery as to allow successive volumes of gas to be passed into and forced out of the diaphragm chamber. Two or more of such diaphragms are fitted to every dry meter.

In *wet* meters the measuring apparatus is a "drum" or hollow wheel sunk above its axis in water, and revolving in the water. By an ingenious contrivance the gas enters the upper portion of the drum, which is out of the water, and by its pressure causes the drum to revolve. By this revolution a volume of gas is measured, the capacity of the drum being known. It is of importance that the meter should stand on a horizontal base, and that an exact proportion of the drum should be above the water while the rest is submerged.

2. The *registering* apparatus of both wet and dry meters is of similar kind. The drum of a wet meter and the diaphragm of a dry meter are both connected by means of proper wheels and spindles, with an index having a series of dials worked by a train of wheels, and capable of registering the successive volumes of gas passed through the drum or diaphragm of the meter.

Thus the quantity of gas measured by a meter depends upon the size of the drum or diaphragm; the rate and pressure at which gas is passed through the meter; and the construction and arrangement of the train of wheels and spindles connecting the measuring apparatus with the index. The index only records the number of the revolutions or complete actions of the drum or diaphragms.

Under the present law all that an Inspector ascertains is the size of the drum or diaphragm chambers of a meter when the gas is passed into it at a certain pressure and speed per hour, as stated upon the badge or plate fixed on the front of a meter by its maker. To ascertain this he is required to pass through a meter only a few cubic feet of gas, a quantity quite insufficient even to test the lowest of the dials commonly used, which is made to register "hundreds" of cubic feet. But Mr. Mills, the Inspector of Meters for the western district of the Metropolis, ascertains as near as possible the position of the "hundred" hand on the first dial of every meter at the time of its verification, but this is merely an approximate test of the accuracy of the index.

Without ascertaining whether the train of wheels which work the index are of proper arrangement (that is, whether ten revolutions of the "hundreds" dial causes one revolution of the "thousands" dial, and so on), a meter is passed as correct. Supposing a consumer of gas to be desirous of possessing a meter which should register in his favour, the wheels attached to the index of his meter may be so altered that *twelve* revolutions of the first dial would register 1,000 instead of 1,200 cubic feet on the second dial; twelve revolutions of the second dial would register 10,000 instead of 12,000 cubic feet on the third dial, and so on. Such a meter would, according to the present practice, be stamped by any public inspector.

The Sale of Gas Act provides that meters shall not be passed if having a larger error than two per cent. in favour of the seller of gas, or three per cent. in favour of the consumer. The Inspector of Meters for Westminster has known the index apparatus of meters to be from 13 to 150 per cent. in error, yet the meters to which those indices were fitted appeared to register correctly, indeed some of them had already been tested and stamped as correct by other Inspectors. As a rule the indices used by meter makers are practically correct when new; but there is no provision for the testing of an index, even though it has been in use 20 years.

The necessity for examining the indices of gas meters was pointed out to the Treasury by the Astronomer Royal in

Appendix VII.—*continued.*

his letter of 11th February 1860 (Parliamentary Paper 100, p. 1):—

"Neither the gas consumer nor the meter inspector ever examines the wheelwork which connects the index drum with the dial plates; nor could they do so if they desired it, the wheel work being so enclosed in a box as to be beyond the reach of examination. The Act, which uses the general word 'testing' without any description of the process, must be interpreted, I presume, as sanctioning the process in ordinary use at the time of its enactment; and it cannot, therefore, be cited as compelling any examination of the connection between the index drum and the dials. The door, therefore, is left wide open for any amount of error, even to the extent of charging five times the quantity of gas really consumed, by an error of blunder or fraud in adjusting the train of wheels between the index drum and the dials; and the Act 22 & 23 Vict. c. 66. is nugatory and useless.

"The apprehension of the concurrence of error, which I have conveyed at the end of last paragraph, is supported by fact. The following history came to my knowledge:—I give it as a memorandum, certainly correct in all its essentials, and I believe correct in all details: Complaint was made to a branch gas office of overcharge in a meter. The meter was examined by the Company's Inspector and found correct. The complaint was twice again repeated, and the meter was twice again examined and found correct. At last the wheelwork was opened and examined, and it was found that, in consequence of the insertion of an erroneous wheel, the just charge for gas consumed was doubled, and a considerable sum reimbursed to the consumer. On my citing this at the Company's principal office I was at once informed that there had been repeated instances of the same kind. I feel it my duty to give this history on my own responsibility, without reference to the name of the Company, remarking only that it is inferior to none in Britain in the correctness of its conduct of business in general.

"The necessity for examining the wheelwork between the index drum and the dials has not escaped the legislatures of various foreign countries.

"For ascertaining with reasonable facility the correctness of the wheel train, two principal methods suggest themselves.

"The first is that of mounting each wheel so as to turn, not with an axis and two pivots, but by having its wheel and pinion bored, so as to turn upon a fixed stalk; the face of the wheel carrying the numerated dial, and the index for that dial being fixed, the front plate being then entirely removed, and more than half of each toothed wheel and numerated dial being always in sight. Messrs. Paddon and Ford, of 2½, Foundling Terrace, Gray's Inn Road, have undertaken, on my suggestion, to carry out this, and no difficulty is anticipated. In practical use there would be the trifling trouble of counting the threads of the worm and the teeth of the wheels, and ascertaining that their numbers bore the proper proportion.

"The second is suggested by Mr. W. Crosley, of 103, Southwark Bridge Road. It is to the effect that the wheel train (including the index drum and a socketed spindle which carries it) should be constructed separately and be separable from the wheel in which the worm of the gas-drum or crank-axis acts and from the spindle of that wheel; the only union of the moveable parts being made by slipping two slots of the index-drums socketed spindle upon a crosshead of the wheel's spindle. In this construction, without any counting of teeth, the relation between the movements of the index-drum and of every one of the wheels can be tested in two or three minutes, and the three stamps securing the invariability of the frame of the wheels and of the index-drum, would, when the meter is completely put together, always be in sight. The manufacturer would construct great numbers of these counting boxes, and would send them to the Inspector for verification at his leisure, and would afterwards mount them successively on the successive meters which he constructed, and would then send each complete meter for the ordinary index-drum verification.

"It is quite clear that there is no difficulty, either in legislation or in practice, in remedying the defect of the Act, and with such remedy, the provisions of the Act for testing gas meters would be made, perhaps, as nearly perfect as is possible.

"In regard to the preparation of meters for testing, I think it ought to be enacted that every meter must have its counting apparatus so constructed that either the whole can be seen, and its accuracy can be examined by the Inspector (at the time of making the test by passage of air), on a principle equivalent to that described in paragraph 30, first suggestion; or that the correctness of the relation and connexion of the various parts of the counting apparatus can be verified and authenticated by stamp before the counting apparatus is affixed to the meter, on the principle of that described in paragraph 30, second suggestion.

"And in regard to the operation of testing, I think it ought to be unequivocally laid down as a duty of the Inspector, to examine the counting apparatus with reference to this required correctness, and to refuse his stamp unless the counting apparatus admit of examination and be found correct. It is absolutely necessary that this enactment apply to the meters now in existence."

The Comptroller of the Exchequer (Lord Monteagle) in his letter to the Treasury of 17th February 1860 (Parliamentary Paper 100, p. 9), in reference to the Astronomer Royal's Report to the Treasury says,—

"It appears that in other countries, Belgium for instance, precautionary laws have been passed to guard against the dangers already described, but unfortunately no corresponding enactments have been introduced into the English Sale of Gas Act.

"Is it not a matter of grave doubt how far that Act can be safely adopted for the regulation of a great trade, and how far it is justifiable to give it effect, without forewarning buyers and sellers of the imperfection of its enactments?"

The Treasury in transmitting the Astronomer Royal's Report to the Exchequer and Board of Trade, state in their Minute of 1st March 1860, in reference to the proposed examination of indices of meters:—

"Having reference to the very difficult and complicated mechanism requisite to prevent fraud, as pointed out by the Astronomer Royal, and to test with an accuracy which may be relied on the quantity of gas in each case consumed, my Lords have considerable doubts whether it would not be preferable to leave the detection of fraud and the means of preventing it to the acuteness of the individuals interested, and to the ordinary operation of competition, rather than to endeavour to guard against fraud by legislation in matters of such minute detail."

The Astronomer Royal in submitting to the Lords of the Treasury his remarks on the views taken by the manufacturers of gas meters, of his Report of 11th February 1860, and suggesting the course to be now adopted, refers to paragraph 27 of that Report, and adds:—

"It will be perceived that my opinion on the necessity of legislation is based on the following idea: 'The Act, which uses the general word "testing," without any description of the process, must be interpreted, I presume, as sanctioning the process in ordinary use at the time of its enactment;' which idea with others (not questions of fact, but of legal interpretation) were submitted by me to their Lordships' judgment. On the fact as to the process in ordinary use, I believe that no doubt can be raised. I have seen a gas meter tested (after complaint) at a company's office, and there was no thought of examining its train of wheelwork; and in the office of the Surrey Inspector, where very many hundreds (I believe many thousands) have been tested, I understood that the wheel train was never examined. (I mention this without attaching the slightest blame to the excellent officer in charge of that office, who is reputed to have discharged its duties with great care and skill, to the extent to which they were considered to be a proper part of his functions.) In estimating the intentions of the Legislature (as interpreted according to usual rules) to adopt this omission, it is to be borne in mind that most precise rules are given in the Act, section 13, in regard to conditions of testing, vastly inferior in importance to that indicated above.

"It was contended by the deputation that the repeated use of the words "to register" in the 12th section of the Act, as in the following phrases," viz.:—

"(Line 1.) Found by the Inspector to register.
"(Line 5.) Be capable of being made to register.
"(Line 9.) Capable of being made to register.
"(Line 12.) To measure and register.
"(Also, line 14 and line 25)
"does, in fact, include the action of the whole of the wheelwork, by which a register of the quantity of gas transmitted is conveyed to the index dials; and that, by the operation of these words, the powers and responsibilities of the Inspector are conveyed by the 12th section of the Act to exactly the same extent as would be done by the enactments which I suggested in Report, paragraph 37.

"In this state I have the honour to submit the question of legal interpretation to their Lordships' decision. If their Lordships should decide that the 12th section conveys all that I desired to suggest there will be no necessity, in my opinion, for further legislation at the present time.

Appendix VII.—*continued.*

"If, however, their Lordships should so decide, I would ask leave earnestly to impress upon them the necessity of stating, most clearly and positively, the duty of the Inspectors to examine the train of wheelwork, and of using adequate means for enforcing the discharge of that duty. If this is not done, the unwillingness of officers to undertake a new duty, especially where some little trouble is involved, will infallibly lead to its total neglect; the counter-boxes will still be so constructed as to prohibit examination, and the whole Act will become (as was stated by the Right Honourable the Comptroller of the Exchequer) a delusion."

The Treasury having transmitted a copy of the Astronomer Royal's Report of 1st February 1860, to the Board of Trade for the consideration of that Board, the Lords of the Committee of the Privy Council for Trade, remark:—

"With respect to the Sale of Gas Act, 1859, which is referred to in paragraph 1 of your letter, the Report of the Astronomer Royal stated that in two important particulars the Act appeared to him to be defective, viz.: 1. In not providing for the verification of the official gas-measurers, which would be deposited as local standards throughout the country, at the several places of their deposit, instead of at the Exchequer Office; and, 2, in not providing that the testing of individual meters by the local inspectors should include the examination of the wheelwork within the meter, by which the quantity of gas passing through it is recorded on the dial plates of the meter.

"On the second point, the Report, after stating (paragraph 30) two methods of construction by which the correctness of the wheelwork may be ascertained with reasonable facility, observes (paragraph 31) it is quite clear that there is no difficulty, either in legislation or in practice, in remedying the defect of the Act, and with such remedy, the provisions of the Act for testing gas meters would be made, perhaps, as nearly perfect as is possible.

"The two points noticed in the Astronomer Royal's Report, as above mentioned, were discussed on that occasion; and by the explanations which were then entered into, my Lords have been led to form the opinion that the Act in its present form does not exclude the adoption of a procedure by which the objects may be effected for which the Report of the Astronomer Royal recommended further legislation; and that apart from the question what department of Government should superintend the execution of the Act, it is desirable to allow the Act to come into operation in its present form, in order that the sufficiency of its provisions may be tried."

By the Treasury Minute of 24th March 1860 (Parliamentary Paper 293, p. 11) their Lordships state,—

"As regards the meters, my Lords desire to call attention to paragraph 37 of the Astronomer Royal's Report, from which it appears that it is absolutely necessary that the examination of the counting apparatus be in every instance fully carried out by the Inspector, and that the counting apparatus of gas meters be so arranged as to give all reasonable facilities for such examination as explained in paragraphs 30 and 37 in the Astronomer Royal's Report; and my Lords invite the attention of the manufacturers of gas meters to the devising of arrangements which will secure this object."

With reference to this correspondence, it may be here remarked, that it is doubtful whether, practically, a buyer of gas could defraud the seller of gas to the extent of *five times* the quantity of gas consumed, as so palpable a fraud would be immediately detected when the gas company's collector or inspector made his periodical inspection of the meters, but several instances are known to me of gas companies losing 25 per cent. by a gas meter without discovering their loss.

From the simplicity with which the train of wheels working the index is constructed, it is easy in five minutes to ensure the accuracy of a meter index or counting box, as stated by Mr. Crosley (Astronomer Royal's Report, 11th February 1860, s. 30, Parliamentary Paper 160) without counting the number of teeth or screws in the train, or exposing any part of the index to view after it is fitted to a meter. This train of wheels might be conveniently tested by a counting apparatus.

But if it is insisted that one of the dials of an index should register individual feet from 0 to 10, and that all the dials of the index from 0 to 10,000 feet should be worked by one motion emanating from the minimum or foot dial, no undetected fraud could easily be perpetrated, for all the dials would be tested by the smallest or foot dial, which would itself be directly compared with the copy of the official Standard when the index was fitted to the meter.

The repeated use of the word "register" in s. 12 of the Sale of Gas Act appears to include the testing of the registering apparatus of a meter, but no rules are laid down in the Act for testing the indices, although ample instructions are given in s. 13. for testing the soundness and correctness of the measuring parts of a meter. The gas meter inspectors, in the absence of proper instruction, have consequently never tested the indices.

In 1860 it was contemplated by one of the clauses of the Sale of Gas Act Amendment Bills to include the examination of the indices of meters, but as these Bills never became law the matter slept.

H. J. Chaney.

II.—*Suggested Alterations in the "Sale of Gas Acts, by Mr. Mills, Inspector of Meters; transmitted by the Metropolitan Board of Works, on November* 12, 1869.

Suggestions made to the Metropolitan Board of Works by Mr. Mills, Inspector of Meters for the Western district, for Amendments in the "Sales of Gas Acts," and an Act intituled "An Act to amend the Metropolis Gas "Act."

1. All meters shall be tested by the Inspector of the district in which such meters are made, repaired, or used for the purpose of measuring the gas supplied to the consumer; meters not so tested shall be deemed unlawful meters within the meaning of this Act, and any person or persons knowingly sending or taking, or any Inspector knowingly receiving or testing, any meter or meters from any other district than as before-named, shall, upon conviction, be liable to penalties not exceeding forty shillings for each offence. Provided always, that such meter or meters are not disputed according to the 21st section of the Sale of Gas Act, 1859.

Note.—The necessity for the above amendment to the present Act is obvious, seeing that the Metropolitan Board of Works have been compelled by Statute and at a considerable expense to appoint a sufficient number of Inspectors, to allot each a district, and provide the necessary offices, apparatus, &c. for testing the whole of the meters that are made, repaired, or used in the metropolis, and after having duly complied with the "Act" the meters which should, as a matter of course, have been sent to those Inspectors for testing, as, evidently by the fourth clause of the "Sale of Gas Act" was the intention of the Legislature, are for some at present unknown reasons sent out of the districts, some to the "City of London," others to an Inspector several miles from the metropolis, viz., Kingston in Surrey; consequently those offices established by the Metropolitan Board which should and would have been nearly self-supporting are a source of considerable expense to the non-gas consuming ratepayers of the metropolis. A precedent for the above restrictions will be found in the 25th section of the Weights and Measures Act, 1835, whereby any Inspector knowingly stamping any weight or measure of any person residing within the limit or jurisdiction of another inspector, is liable to penalties not exceeding 20*s.* for each offence.

2. The 19th section of the before-recited "Sale of Gas Act" shall be and is hereby repealed, and in lieu thereof the fees for examination, comparison, and testing with or without stamping, "dry" meters shall be 6*d.* for each meter, manufactured or intended to deliver or register 30 or less number of cubic feet of gas or air per hour. One shilling for each meter manufactured or intended to deliver or register more than 30 and not exceeding 60 cubic feet of gas or air per hour, and a further sum of 6*d.* for every 50 cubic feet of gas or air, or part thereof; each meter may be manufactured or intended to deliver or register per hour beyond the first 60 cubic feet at a pressure equal to a column of water one inch high. The fees for examination, comparison, and testing with or without stamping, "wet" meters shall be 9*d.* for each meter, manufactured or intended to deliver or register 30 or less number of cubic feet of gas or air per hour. One shilling and sixpence for each meter manufactured or intended to deliver or register more than 30 and not exceeding 60 cubic feet of gas or air per hour, and a further sum of 6*d.* for every 50 cubic feet of gas or air, or part thereof; each meter may be manufactured or intended to deliver or register per hour beyond the first 60 cubic feet at a pressure equal to a column of water one inch high.

Note.—This is also an alteration which is absolutely necessary, the present "Act" charges the fees for testing according to the revolution or complete action of the

Appendix VII.—*continued.*

meter, and not as it should be in accordance with the quantity of gas the meter is made to pass per hour. This causes two prices to be charged for the same size meters, to wit:—A 10-light dry meter of Mr. T. Glover, Ford, or Boulton's make is, according to the mode laid down by the present Act, charged 1*s.*, whereas a "dry" meter of the same size, manufactured by Defries, Meacock, or W. Sugg, is only charged 6*d.*, although made to pass the same quantity of gas per hour, and taking the same amount of gas, time, and trouble in testing as the before-mentioned meters; this discrepancy also occurs in many of the larger sizes. The same may be said of some of the "wet" meters; for instance,—the fee for a 10-light of the general description of compensating wet meters is 1*s.*; the fee for the same size wet compensating meter of Messrs. Brown and Bischoff's manufacture is 6*d.*; a 100-light of the former, 5*s.*; a 100-light of the latter only 2*s.*; the time and gas expended being in both cases the same. This anomaly would be entirely obviated by charging the fees according to the quantity of gas the meter is made to pass per hour in lieu of the quantity per revolution or complete action as at present. The "wet" and "dry" are also now charged alike; this is, to a certain extent, unjust to the dry meter makers, as that instrument requires but one test for soundness, and one to ascertain the per-centage of error, whereas the "wet" meter of the original description requires the test for soundness, and two for per-centage of error; viz., one at the highest, and one at the lowest water lines, for the purpose of ascertaining the extreme capability of variation of registration. This consequently consumes double the amount of time and gas than that of the "dry" meter, and, therefore, should in justice be paid for accordingly. The suggested alteration would also make the offices self-supporting; this being a great desideratum in itself.

3. The Inspector of the district duly authorized and appointed under the "Sales of Gas Acts," or in accordance with an Act passed in the 24 & 25 Vict. c. 79., intituled "An Act to amend the Metropolis Gas Act," shall of his own accord have power to enter consumer's premises at all seasonable hours for the purpose of examining and testing any meter or meters that may be fixed or used on such premises, or remove any such meter or meters for that purpose. Any person falsely representing himself as the Inspector for the purpose of obtaining such entry, shall upon conviction, forfeit a sum not exceeding 5*l.* for each offence, or be imprisoned for a term not exceeding three months in the common gaol.

Note.—It will be observed that the existing "Act" relating to the Sale of Gas, unlike the "Weights and Measures Act," gives no power to the Inspector to enter premises of his own accord, however urgent the case may be, for the purpose of examining or testing a meter, but must obtain the authority in writing from a justice of the peace, and then only upon the request of the Gas Company or consumer who shall have given 24 hours notice in writing to the other contracting party; consequently a peron may use or fix an unstamped or fraudulent meter and the Inspector have no power to prevent or detect it except upon a request as above, the 24 hours notice giving plenty of time for the surreptitious removal of the meter compained of, and the substitution of another in its place.

Schedule showing the fees payable as per "Sale of Gas Act," with suggested alterations to equalize the same and make the Meter Inspector's offices self-supporting.

Wet Meters.

Fees as per "Sale of Gas Act."		Proposed Alteration.	
	s. *d.*		*s.* *d.*
5 lights and under	0 6	5 lights and under	0 9
10 " "	1 0	10 " "	1 6
20 " "	1 0	20 " "	2 0
30 " "	1 0	30 " "	2 6
45 " "	2 0	45 " "	3 6
50 " "	2 0	50 " "	3 6
60 " "	3 0	60 " "	4 0
80 " "	4 0	80 " "	5 0
100 " "	5 0	100 " "	6 0
150 " "	7 0	150 " "	8 6
200 " "	10 0	200 " "	11 0
300 " "	15 0	300 " "	16 0

The fees for testing "dry" meters will remain as heretofore, with the exception of causing all makers to pay alike.

The following table shows the quantity of gas necessary for testing "wet and dry" meters, to which may be added 5 per cent. for expelling the air and working the meter to a point to start the test from:—

Wet Meters.

Size.	Pressure Test.	Measure Tests.	Averaged Total.
2 and 3 lights	0·25	2 at 5 feet	10·25
5 lights	0·50	2 " 10 "	20·50
10 "	1·09	2 " 10 to 20 feet	31·00
20 "	2·00	2 " 20 " 40 "	62·00
30 "	3·00	2 " 50 feet	103·00
50 "	4·00	2 " 50 "	104·00
60 "	6·00	2 " 100 "	206 60
80 "	8·00	2 " 100 "	208·00
100 "	10·00	2 " 100 "	210·90
150 "	15·00	2 " 100 "	215·00
200 "	20·00	2 " 100 "	220·00
Dry Meters.			
1 light and under	0·20	1 at 2 feet	2·20
2 to 5 lights	0·25	1 " 4 "	4·25
10 and 20 "	1·00	1 " 5 to 10 feet	8·50
30 lights	2·00	1 " 10 feet	12·00
50 "	3·00	1 " 20 "	23·00
60 "	4·00	1 " 20 "	24·00
80 "	4·00	1 " 40 "	44 00
100 "	6·00	1 " 40 "	46·00
150 "	10·00	1 " 40 "	50·00
200 "	15·00	1 " 80 "	95·00

III.—*On the Inefficient Working of the "Sale of Gas" Acts, by Mr. W. Crosley.*

28, St. James' Square, Notting Hill, London, W.
November 27, 1869.

Sir,

In reply to your inquiry as to any information I can render you, in reference to the working of the Sale of Gas Act, 1859, for the information of the Standards Commission; and understanding that it is not intended to hear any further "*vivâ voce*" evidence on the subject, but that you wish my communication to be in writing, I have much pleasure in doing what I can to add to the information which doubtless you already possess, as to the inefficient working of the Sale of Gas Act, 1859, with its subsequent professed amendments, but which do not really amend the defects.

As I have been associated with, and watched with much care and interest, the origin and progress of this measure from its infancy (if I may so express it), I grieve to say that I find in some cases that instead of its being a guarantee of security to the public, it is in certain cases converted into a deception upon them; inasmuch as there is no real security that the superintendence of officers appointed under its provisions, to protect the interests of all parties interested, effects the objects intended.

I do not intend to go into all my experience of the defects of the Act itself, and the mode of carrying it out, but will simply give you a practical illustration of the way in which the Act has, in my opinion, been employed in a mischievous, instead of a beneficial way, from the fact that no one is employed to look after and keep in check those who are engaged to carry it out in the provinces.

By way of example, I proceed to state what is within my own knowledge.

I have been engaged as engineer to a provincial Gas Company, recently established, and it has been my duty to attend to the construction of their works and apparatus. It was provided in the specification appended to the contract between the Company and the contractor, that the meters to be supplied should be "tested and properly "stamped by a duly authorized officer, appointed under "the Sale of Gas Act." It was considered that such would be a sufficient guarantee for their being *properly tested* by a competent officer appointed under the Sale of Gas Act, *before* the official seal of such Inspector was appended. Subsequent experience unfortunately showed that such was not the case.

Having had reason, from the result of my own testing, to doubt the accuracy of a meter bearing the official stamp of the Gas Meter Inspector of the district, I had one of the new 3-light meters detached from the fittings of one of the consumers of gas in the town, for the purpose of being tested. This meter, which at the time bore the recently affixed seal of the Inspector, was brought by me up to London to be re-tested by the four Inspectors appointed by the Corporation of the City of London and the Metropolitan Board of Works. The first of these officers destroyed the seal of the local Inspector, on the ground that the meter was not one which complied with the Act of Parliament, it registering between 4 and 5 per cent. against the Gas Company when passing gas at full speed, at a low water line. The three other Inspectors, who subsequently tested it, confirmed the conclusions of the first London Inspector, each one giving me his certificate of the result

Appendix VII.—*continued.*

of his testing, which showed even considerably greater liability to error *at higher pressures and slower speeds.* Under certain circumstances, which would be likely to occur in practice, it would not register any of the gas passing through it; that is to say, at the lowest water line, when the centre opening was unsealed by water, in consequence of having an unsound valve, and the gas passing under the centre opening, the measuring wheel would stop while the gas flowed through. Several of the meters similarly stamped, seemed to possess the like defect, according to the mode of testing laid down by the Act of Parliament, and followed by all the four Inspectors of the Metropolis and City of London; they consequently agreed that it was not a proper meter to be stamped.

On submitting these facts to my Board of Directors in an official Report, dated 26th January 1869, it was arranged that a 5-light and 11 other meters which had been supplied to the Company by the Contractor, and were also stamped by the same local Inspector, should be taken back to him, to be re-tested in presence of the Chairman of the Gas Company and myself.

When we arrived at his office with the meters, I found the Inspector was not even then (Feb. 6, 1869), prepared with the requisite apparatus to comply with the provisions of the Act of Parliament for testing, although as I understood, he had been acting as a gas meter Inspector for several years. He was requested to re-test one of the meters by his ordinary method. He did so by simply putting the meter on the proving table, filling it with water up to the *regulated* water line, attaching the inlet to the airholder fittings (for no gas was used), and then passing atmospheric air through it, at half an inch pressure, until the index of the meter showed that 10 cubic feet of air had been recorded thereon, while the gasholder showed that 9·87 cubic feet had been recorded upon an "*Auxiliary* scale," painted upon a large wheel above the measuring bell of the gas or airholder, but which "*Auxiliary* scale" is not the legal or authorized one stamped on the measuring bell at the Exchequer Office. The Inspector then declared this meter re-tested and accurate, according to the limits of error allowed by the Sale of Gas Act,* and called for another to be submitted to him, to be tested in like manner, claiming his fee for re-testing, and being paid by the Chairman of the Gas Company.

I then interposed, and told him that he had not yet tested the meter as required by the Act of Parliament, inasmuch as he had not compared the temperatures of the air in the room, the air in the bell of the gasholder passed through the meter, nor the water in the tank of the gasholder or airholder, nor the water supplied from another source into the meter:—That he did not appear to have a proper thermometer for the purpose, but only a small common boxwood one, such as are to be seen in shop windows, marked at prices varying from 1*s.* to 2*s.* 6*d.* each:—That I saw such a thermometer hanging up against the wall at a distance, but that it had not been referred to during the supposed testing, nor used in any way; he had therefore not attended to the temperatures:—That he had not tested the meter for soundness, *by gas* at 3 *inches* pressure, as required by the Act; moreover, that he had no gas laid on, nor any gas fittings on the premises, for the purpose of enabling him to do so, but only some small gas fittings for lighting the room:—That he had not tested the meter for accuracy of registration at any other point than the adjusted water line, and not at the low water line, and that consequently he had not tried what was the range of error in registration:—That he did not test the meter at the *speed*, or rate per hour, marked upon the meter, as he was required to do; (I did not see a clock of any description in the room, and no watch was looked at, during the testing. There should be a seconds and minute clock in the room, for the purpose of timing the rate of consumption. The outlet was not regulated by any apparatus, for speed, but only a dab of putty put over a portion of it):—That he had not tested the meter by the engraved scales on the measuring bell on the gas or air holder, which bore the Exchequer stamp, and were the only legal scales, but that he took his observations exclusively from a painted "*Auxiliary* scale," on the wheel above the measuring bell, this scale being non-official, and only intended as marked upon it, to be an "auxiliary scale" for the purpose of assisting the Inspector when at a distance, and showing him, at a glance, when his attention may be required to observe the authorized scale:—That I observed the meters had not their capacities at *one* revolution marked upon them, as required by the Act, but the quantities in certain numbers of revolutions according to size.

Upon this, the Inspector stated that he had held his office for several years, and had tested 25,000 meters in that way, and none other, and had stamped them as correct, thereby implying that they were tested according to the Act, and he refused to test the meters in any other way.

Upon these grounds, and considering also that he had not even then the necessary apparatus and provisions on the premises for carrying out the requirements of the Act, I refused to submit any of the other meters to him, for what I considered to be a delusive process. Upon reporting on the subject fully to my Directors on the 13th February last, in the presence of the same Chairman, who acknowledged that my report was "*technically correct,*" my next step was to bring with me to London, for re-examination, that same 5-light meter which he had thus re-tested, and pronounced as correct, according to the Sale of Gas Act.

The result of my submitting the 5-light meter to the four Inspectors in London, in a similar manner as the 3-light one before alluded to, was, that the first Inspector condemned it after testing, and destroyed the local Inspector's seal upon it. The three other Inspectors, after testing it, likewise condemned it, as not complying with the Act of Parliament, as they did the 3-light meter first submitted to them. They found that at the low water line the error was between four and five per cent. against the Company, when working at full speed, a much greater error than the limit permitted by the Act of Parliament; when working at slower speeds and higher pressures, the errors were much greater, whilst under other circumstances, which might, and probably would, occur in practice, gas would, as it did, during the testing, pass through the meter unregistered, showing a loss to the Company in such cases of cent. per cent. These defects had not been discovered by the local Inspector, but he should have found them out, and not have put his official seal on the meter until the defects had been remedied.

It therefore appears that there has been a very serious miscarriage of the intentions of the promoters of the Sale of Gas Act, as well as of the Legislature, in the case of the operations of the Inspector I allude to, and if so in his case, it may naturally be asked in how many others also, for want of some proper check upon local Inspectors, of a less cumbrous, tedious, expensive, and troublesome kind than is provided for in the Act. As a practical man, I consider the existing mode of appeal to be most unsatisfactory, almost prohibitive of remedy against wrong doing of provincial Inspectors. It is contained in ss. 21. and 22. of the Sale of Gas Act, 1859, and consists of an appeal to two Inspectors of adjoining districts, who may be nearly 100 miles away, and perhaps afterwards having to carry the case for adjudication to quarter sessions. Incompetent Inspectors may defy any person calling them to account for their misdeeds, who will not incur the trouble, loss of time, and very serious expense he may thus be put to.

From my experience I am convinced that the Sale of Gas Act, 1859, and amendments of 1860 and 1863, require further amendment, to secure fair dealing between the suppliers and consumers of gas.

1. Because it is not now compulsory in all cases, but only permissive, in some instances, that meters may be verified, leaving no security for fair dealing in those districts where the Act is not in force.

2. Even where the Act is in force, there is no security that it is faithfully carried out in the provinces, as is exemplified by the experience I have above quoted, without going into the notorious case of Kingston-upon-Thames, which was so flagrant that it has already been reported and severely commented upon, by the public press.

3. The rules laid down by the 13th section of the Act for testing meters, are not sufficient to detect errors, which may actually exist in practice in certain cases where higher pressures and slower speeds are used.

4. The fees for testing wet and dry meters being the same for corresponding capacities, is not fair, as the time, trouble, and expense are not equal. This I state without prejudice in favour of either one kind or the other, not being a manufacturer, or dealer, or having any personal connection or interest in a pecuniary way whatever with the trade, but simply as a professional man desiring to see right prevail.

5. I think the present mode of charging fees for testing meters by the number of "revolutions or complete repe-
" titions of the action of the meter" for certain quantities,

* I may remark that the local Inspector has officially certified that the exact registration of this meter is $\frac{4}{10}$ of 1 per cent. in favour of the Gas Company, and has not certified to me that the certificate I hold to that effect is otherwise incorrect under any circumstances. The same remark applies to the 3-light meter previously mentioned.

Appendix VII.—*continued.*

is *wrong*, as I find it has led to manufacturers, in some cases, marking them beyond their legitimate power, as to speed, or rate of consumption per hour (because they are not charged by the rate per hour), in order to compete with other manufacturers who may conscientiously adhere to the recognized proper speed for the same sized meter. For example, one manufacturer may mark his 3-light meter to pass 15 cubic feet per hour, while another may mark his to pass 20 cubic feet per hour, the measuring wheel being in fact, the same in each case; viz., $\frac{1}{8}$ of a cubic foot and the testing fee being the same.

6. I consider the charges as laid down by the Sale of Gas Act, 1859, in certain cases too large, and in others too small, as is shown by experience.

There should be three scales of prices for testing according to the kinds of meters, viz.: Non-compensating Wet Meters, Compensating Wet Meters, and Dry Meters, as below, viz.:—

	Wet Meters.		Dry Meters.
	Non-compensating.	Compensating.	
	s. d.	*s. d.*	*s. d.*
Up to a rate of 5 feet per hour inclusive	0 7	0 6	0 5
From 5 feet to 10 feet per hour inclusive	0 8	0 7	0 6
From 10 do. to 15 do.	0 10	0 9	0 8
From 15 do. to 25 do.	0 11	0 10	0 9
From 25 do. to 50 do.	1 3	1 1	0 11
From 50 do. to 100 do.	1 8	1 4	1 1
From 100 do. to 150 do.	2 0	1 8	1 4
From 150 do. to 225 do.	2 5	2 0	1 8
From 225 do. to 250 do.	3 0	2 6	2 0
From 250 do. to 300 do.	3 6	3 0	2 6
From 300 do. to 400 do.	4 9	4 0	3 3
From 400 do. to 500 do.	6 0	5 0	4 0
From 500 do. to 750 do.	8 6	7 0	5 6
From 750 do. to 1,000 do.	12 0	10 0	8 0
From 1,000 do. to 1,250 do.	15 0	12 6	10 0
From 1,250 do. to 1,500 do.	18 0	15 0	12 0
From 1,500 do. to 2,000 do.	24 0	20 0	16 0

And for sizes above those last quoted, an additional charge of 10*s.* for every 1,000 cubic feet per hour or fractional part of 1,000 cubic feet per hour above the first 2,000 cubic feet per hour, without reference to distinction or class of meter. The above charges to be made for meters delivered to the meter Inspector, and tested on his premises, but if the Inspector be required to go and test meters elsewhere than on his own premises, and therefore to take with him his testing apparatus and assistants, then in that case he shall be entitled to charge in addition thereto the actual cost of conveying the apparatus to and from the place where the testing takes place, as well as the actual cost of his own and necessary assistants' time at and after the rate they are actually paid by the corporation, whose servants they may be at the time, for the time which they may have actually devoted necessarily to the matter.

7. In my opinion all wet meters shoulds be re-verified at least once in every five years. I have known the measuring wheels in some cases where brackish water is used, become in holes within three years; whilst in other cases, where different water has been used, the measuring wheels have appeared perfectly sound 20 years after their manufacture. The differences in the chemical quality of the gases have also some influence on different metals in such cases. Moreover I have observed, in certain cases, a liability to *deposit* on the surfaces of the measuring wheel, both inside and out, which in course of time would have the effect of sensibly affecting the capacity of the meter, in the same way as putting a thin lining of any substance inside a quart, or any other measure, would affect it after adjustment.

All dry meters should be re-verified at least once in every three years, because within this period the diaphragms of dry meters often become either in holes, contracted, or distended, so as materially to affect their accuracy of registration, and the valves and their seats often become defective and leaky. A certificate of the last verification and stamping should be attached to the meter, with date, &c. in each case.

8. The present law does not sufficiently provide for the accurate testing of station and other large meters, which in fact cannot be tested according to the rules laid down in the 13th clause of the Sale of Gas Act, 1859, when the meter exceeds the size of many consumers' meters for mills or factories, by any means at present provided by the Act.

I witnessed an extraordinary proceeding in a case of this sort some time ago, by a provincial Inspector, testing a station meter, the speed of which was estimated at 2,000 cubic feet per hour, when his testing speed was only about 180 cubic feet per hour. The testing instrument was a 10-feet unstamped non-official gasholder, belonging to the meter maker, and on the meter maker's own premises. While the capacity of the measuring wheel of the meter was 20 cubic feet, so that the wheel of the meter had to be stopped when it had performed half a revolution, and before 20 feet could be sent into the meter, to enable the gasholder to be recharged, and if the measuring wheel of the meter had been in excess of 20 feet, a further stoppage for refilling would have been required. The gasholder, or rather airholder, was up in a warm room, while the meter was in the open air, in the yard below, where the temperature was many degrees colder; the supply was through about a $\frac{3}{4}$-inch or 1-inch iron pipe many feet in length, and no attention was paid to variation of temperature of either air in gasholder, room, or yard, nor to variation of temperature of water in the gasholder tank in the hot room, or in the meter in the cold open air in the yard. Yet the meter was passed by the Inspector, and was afterwards fixed on the premises of the Gas Company; and it was not till a considerable time afterwards that a metallic plate, bearing the official testor's seal, was sent to be screwed on the meter, and was so attached. It still remained there when I last saw the meter about seven weeks ago; but it might have been as easily affixed to any other meter anywhere else, or to any other thing, even in Kamtschatska; and it now can be removed at pleasure, and affixed to another meter, without in the slightest degree interfering with or defacing the seal. Such proceedings appear to me to be contrary both to the intentions and provisions of the Sale of Gas Act.

9. I consider the arrangements for carrying out the Sale of Gas Act, both in the City of London and the district of the Metropolitan Board of Works, to be complete and efficient for all ordinary sized consumers meters; but not sufficient for testing the large sized station meters, such as are used at the gasworks in cities and large towns for recording the quantity of gas manufactured. That is not, however, a matter of absolute necessity, as no gas is sold by the registration of those meters; still it would be a satisfaction to be able to have them tested and verified in the same way as consumers meters. I also consider the officers employed under the Sale of Gas Act, both by the Corporation of the City of London, and by the Metropolitan Board of Works, are men of intelligence and practical experience, and well qualified to carry out their several duties, from my knowledge of each of them; and I feel sure that if the provinces were, in all cases, as well represented as London City and Metropolis, there would not be so much ground for complaint as there really is now in certain cases, although there may be, as no doubt there are, laudable exceptions to the instance herein quoted.

10. Gas meters being essentially measures of capacity, should, in my opinion, be brought under one general Act of Parliament relating to weights and measures, quite as much as a bushel, peck, quart, or any other measure.

11. I am satisfied that some general supervision and control over the Inspectors of gas meters, and of the local standards or testing apparatus employed by them, are required in order to ensure uniformity, and that there will not be regularity or uniformity of action till such supervision and control are established.

12. There should be a provision for disavowing and rendering illegal any stamp once issued by authority of the

Appendix VII.—*continued.*

Act of Parliament, which has either been lost or may have fallen into the hands of some person or persons not lawfully entitled to use the same. For instance, the stamp numbered "21" supplied for Perth, and said to have been lost and replaced by one numbered "27;" and the stamp numbered "45," issued to Kingston-on-Thames, where the inspection, as I have been given to understand, has become defunct. The use of stamps Nos. "21" and "45," under these circumstances, would, therefore, I presume, be illegal, and they should, if possible, be called in, to prevent fraudulent use of them.

13. I think that the official standard gasholders should be re-verified periodically, say once in every ten years, and all the copies of the same, or local standards used by Inspectors of gas meters, should be re-verified once in every five years, where only ordinary wear and tear have been going on; but in cases of accident, every time an accident has occurred, and the damage has been remedied, they should be re-verified before being used again by the Inspectors.

14. For the sake of uniformity and accuracy of measurement, there should be uniformity of rules and instructions issued to each and every Inspector of meters throughout the United Kingdom, under the authority of the Warden of the Standards for the time being, or the Board of Trade, as may be fixed, with power to the Board of Trade, or Warden of the Standards for the time being to amend such rules and instructions from time to time, as necessity may be found to arise.

15. The limitation of the authority of the Sale of Gas Act to such districts only as shall have voluntarily adopted it, in my opinion is unfair and unjust to those who sell or buy gas in such districts where the Act has not been adopted, by those authorities who *alone* have the *power* to adopt it. They may not be interested either in the sale or purchase of gas themselves, but they may be interested in keeping down the local expenditure. County justices living in rural districts, naturally object to county rates for expenses connected with the lighting of boroughs.

16. Upon the grounds stated, I consider the Sale of Gas Acts and the mode of carrying them out, especially in the provinces, most defective and unsatisfactory, and capable of being abused to the prejudice of those who wish to do right, there not being, as I believe, sufficient, if any, check on those who are bound to carry it out faithfully, even where it has been adopted.

17. I think there should be a clause in any amended Act, limiting the charge for a certificate of the registration, or results of testing of any particular meter, to 6*d.* for each certificate, if applied for at any time *beyond* a week of the date of testing of the meters. The fee for testing should cover the charge for a certificate if applied for or required *within* a week of testing. It would be better still that a certificate should be attached to each meter at time of testing, such as I have an impression I have seen done in one of the principal towns in the north of England. The reason of this suggestion is, that not long ago I applied for certificates of the results of testing 55 meters in which I was interested, and the Inspector refused to supply the information, unless I would first consent to pay 1*s.* each or 2*l.* 15*s.*, stating that the corporation, whose officer he was, had made a byelaw to the effect that such charge should be made. I can, however, find no authority for the making of any such charge or byelaw in the Act itself. Moreover upon payment of the charge of 55*s.* the information rendered for it was all contained in one sheet of paper, and did not after all supply all the information wanted or necessary. Some appeal should be provided against such arbitrary proceedings, and provision should be made for obtaining the information and security required.

18. In the appointment of officers to carry out the provisions of the Act, I consider that no maker or repairer, or vendor of meters, or officer, director, or shareholder in a gas company should be interested in, or have a voice or direct influence in the nomination or election of any such inspecting officers.

I have been credibly informed, in the case of the provincial Inspector herein-before referred to, that he was nominated by the meter manufacturer who was at the time a member of the town council, and that the corporation gasholder was kept on the premises of the meter maker, whose meters had to be tested by it for six months or thereabouts before it was removed to the premises of the corporation.

The name of the *Inspector of weights and measures* appears in the printed list of corporation officers at that place, but not the name of the *Inspector of gas meters*, although their offices adjoin each other under the same roof, and they are both officers of the same corporation.

I purposely refrain from mentioning the locality referred to in this letter, or the name of the Inspector, or the number of the official stamp, although I have privately and confidentially communicated such information to you, as I have been given to understand that the object was not a question of personality, but an endeavour to ascertain and find a remedy for the defects of the existing system.

I have, &c.

H. W. Chisholm, Esq., Warden of the Standards, &c. &c. &c. WILLIAM CROSLEY.

P.S.—In the case instanced in the above letter, the meters were, according to the contract, to have been "*tested and properly stamped.*" Inasmuch as they were not "properly" and legally "tested," I consider that they were not *properly* stamped; but that the official seal was *improperly* applied. There is a clause providing for Inspectors not doing their duty, that on conviction they shall be liable to a penalty of 5*l.* in each case; this on 25,000 meters would amount to 125,000*l.* I will, merely in conclusion, refer to another important question, viz.—whether the fees exacted were, under the circumstances legally claimable, or recoverable, the duties *not* having been performed according to the Act, as they should have been, *before* the fee became due?—W.C.

IV.—*On the Working of the Sale of Gas Act, by Mr. William Sugg.*

It cannot be said, after careful examination, that the Sale of Gas Act affords the consumer much greater protection than he possessed before its passing, neither does it appear to be advantageous to the seller.

It professes to offer to the consumer a complete solution of any doubts of the accuracy of the instrument which indicates the quantity of gas he has used, and to the seller a ready means of satisfying his customers that the claim to be paid for the quantity of gas charged is just and equitable.

In truth it is a delusion to both, for practice has shown that the Inspector's stamp may legalize the use of meters as thoroughly unreliable in their indications as those in use before the passing of the Act may have been.

At the same time, the apparently careful wording of the Act to prevent fraud on the part of either the buyer or the seller, places in the hands of the Inspector appointed to carry it out, the power of virtually excluding from the market, meters which are really reliable instruments, because according to his reading of the Act, they do not comply with its requirements.

It, however, leaves him free to stamp, and thus induce the public to accept as reliable, instruments which he could not guarantee as accurate after they have left his proving bench.

In some cases, it places the Inspector in the position of being unduly influenced by individuals desirous of pushing the sale of a particular kind of meter, to the exclusion of others which may be equally or even more reliable. They may force upon him their reading of the Act, from his inability to show that the construction is not legally correct, although he may at the same time conscientiously believe that he would more justly carry out the intentions of the Act by stamping those meters to which these interested parties object.

As yet this last result has been practically obviated by the existence of a kind of competition between the various testing offices, and manufacturers have been enabled to obtain a rough kind of justice at the hands of the Inspectors, by the process of pitting one against the other.

It cannot be for one moment maintained that this is a desirable state of things for the public, and therefore the sooner a general and uniform interpretation of the Act is adopted the more rapid will be the progress towards the introduction and use of an instrument which will fulfil the intentions of Parliament. Until this is done any alteration in the law whereby the manufacturer is prevented from getting his meters tested where he pleases would be a source of injustice to him, without in the least degree improving the relative positions of the buyer and seller of gas.

Even now the difference in the fees charged for testing the various kinds of meters, professedly of the same size, operates in a materially prejudicial manner, and tends to produce much dissatisfaction; but any attempt to improve the working of the Act must deal with both the above-mentioned points, or fail of success.

Under the existing practice, every meter bearing the stamp of the Inspector may be an incorrect one and that to an enormous extent, because he makes no examination of the index or counting apparatus, except as regards the first

Appendix VII.—*continued.*

dial. This only indicates when the small quantity of gas or air employed for testing has passed through the meter, while the remaining dials which indicate at the least, hundreds of cubic feet and may indicate millions, are left entirely to chance.

Indeed, although the indexes made by the original meter makers admitted of easy verification by the process of "spinning up," and were thus very generally verified by them, yet, modern improvements have rendered it impossible, except by a long process to verify their accuracy; and so it happens that an error in the number of the teeth in the wheels, or a wrong pinion, leads to incorrect registration in the gross, although the small quantity required by law to be passed through each meter, may be accurately registered. It may be urged that it is rare to discover an index which is wrongly put together, but there is no proof that erroneous indexes are not common. The probability is, that they are so, but their defects do not produce such glaring errors, as lead to their ready detection.

I have, during the time I have been in the trade, had my attention drawn to many meters made by various makers which have come for repair, the wheels of which were erroneously cut, and some meters were fitted with indexes made for another size of meter than that to which they were attached. I have reason to know that meters have had indexes fitted to them which worked backwards, and I remember one large one which did not correctly register millions. This was, however, soon discovered by the evident discrepancy which existed between the reading of the meter and the consumption of gas. In the last case more particularly, the meter, which was a wet one, bore the stamp of the official Inspector, and I believe in several of the other cases the meters were stamped.

It must also be borne in mind, that the meters stamped are sometimes those which have been repaired by other than meter makers; in such cases the argument, that it is to the interest of the trade, for their own credit's sake, to examine carefully that every part of the instrument they send out is accurately and correctly made does not hold good. Any gas company, gasfitter, plumber, or other person, may take to pieces and refit a meter and afterwards present it to the Inspector for examination and to have his stamp affixed to it. However well this may be done, under proper inspection by the gas companies employing workmen for the most part taken from the shops of meter makers, and who may be supposed to know when they have properly refitted the meters; yet, it is evident that meters so repaired by unqualified persons, perhaps by the consumer himself, may be very seriously in error through accident or design without the knowledge of the Inspector, who blindly affixes his seal to and legalizes a defective, if not, a fraudulent measure.

It appears rather anomalous, that under the existing law both buyer and seller should be left with the power of altering their measures, whilst the Government Inspector has no power to apply any test which would be likely to expose any error which might then arise from negligence or fraud.

Independently of errors in putting together the indexes, it must and does happen, that in the process of fitting up a meter, one or more of the cogs in the wheels of the indexes get bent. If this injury should happen to one of the first wheels of the index, it is tolerably certain to be discovered, either at the maker's or the testing office; but if on the other hand one of the high number wheels is so damaged, it is possible that all the gas used in testing, will not be sufficient to make a perceptible movement, in the position of the damaged cog. It will thus pass unnoticed, but in regular work, as soon as it is brought into contact with the leaf of the pinion, the injured cog is easily broken away by the multiplied force of the meter, and consequently registration, as far as this dial and those beyond it is concerned, ceases, whilst all the rest of the index continues to perform its functions as perfectly as ever. Of course this may happen at any portion of a revolution of the wheel.

In fact I consider the examination of indexes an important point in testing meters for accuracy, and it is left quite unprovided for in the Sale of Gas Act of 1859.

An alteration in the method of making indexes would enable the testor to examine them in a few moments. This alteration is the abolition of all upright spindles, or worms working into cogs in the index itself; of course this does not include the vertical shaft which is driven by the worm fixed on the shaft of the measuring drum in water meters; but those small shafts which are now found in modern indexes, though they never existed in the original ones. Thus, to verify an index, the Inspector could take it into his hand, and with the pressure of his fingers upon one of the high number wheels, cause the entire index to make a complete revolution in perhaps half a minute, when if correct, all the pointers will be again at zero. If it should be found to be too inconvenient to perform this operation by this method, a variety of simple contrivances might with ease be applied with a similar result. This process is called "spinning up," and I have myself verified numbers of indexes in that manner.

The arrangement of the index, so as to be removeable from the meter before the Inspector's stamp is affixed, is simple.

Again, the test for accurate registration is made under a pressure of half an inch of water, for both wet and dry meters, and with the full complement of lights which they are made to supply as marked on the badge. If a meter registers within 3 per cent. in favour of the buyer, and 2 per cent. in favour of the seller, it is considered correct. As a final test, however, previously to affixing his stamp, the Inspector increases the pressure of gas upon it to 3 inches, and reduces the consumption of the burners to $\frac{1}{20}$th of its measuring capacity, when, if the meter only moves, it is stamped as correct, regardless whether the quantity registered corresponds with that actually consumed by the burners. As an example, the registering capacity of a 20-light meter is 100 cubic feet per hour, $\frac{1}{20}$th of this is 5·0 cub. ft. or 5 per cent. Thus this meter may be not more than 3 per cent. slow in favour of the buyer under ordinary pressure and with all the lights on, yet nearly 5 per cent. wrong in the same direction when passing gas to the extent of $\frac{1}{20}$th of its measuring capacity, and yet it is always stamped as correct.

That gas ought to be registered under a pressure of 3 inches as accurately as under $\frac{1}{2}$ inch pressure is very evident, when it is considered that at Highgate for example, and other such high situations it is consumed under a pressure of not less than 3 inches, while at certain hours during the night, the pressure is from 5 to 6 inches. The margin of error allowed in the Act is certainly sufficient, and therefore in amending it, no distinction should be made between the error allowed by the $\frac{1}{2}$ inch pressure test with full lights and that made under 3 inches with a consumption of $\frac{1}{20}$th of the registering capacity of the meter. In fact it is hard to see why a meter should not register correctly within the limits prescribed by the Act, under any ordinary pressures, to be found upon street mains during any hour of the day and night, and not exclusively under the lowest pressure.

The process of testing would be much shortened and be indeed more efficacious than at present, were the test for accuracy made under an average intermediate pressure, say $1\frac{1}{2}$ inches upon the inlet of the meter, and all the lights burning up to its full measuring capacity, as marked on the badge. Thus one test would suffice, much time would be saved, and greater accuracy secured.

Finally, it is very desirable that a clause should be introduced into the Act, enabling the buyers and sellers of gas under certain special circumstances, to mutually agree upon the use of an instrument, which though not strictly in accordance with that previously prescribed, may yet be more adapted to their special requirements. There are exceptional circumstances connected with the consumption of gas which render the application of one uniform standard of meter not only inconvenient, but sometimes impossible.

Take, for instance, the supply of public lamps, where it is necessary to fix the meter under a lamp-post next to a road. The vibration from the traffic renders the adoption of a dry meter impracticable, owing to the continual oscillation of the valves and its consequent defective registration; at the same time it would appear, as previously indicated, to be in the power of any Inspector, should he so construe the Act, to refuse to stamp a suitable wet meter for the purpose, because the float cannot for a similar reason be placed on the measuring water-line. These meters, however, are much in use and are the only ones which have been found to work satisfactorily for this purpose to both parties.

There are doubtless other cases when the arbitrary enforcement of a strict standard meter would militate against the settlement of an equitable arrangement between the gas makers and the gas consumers.

I may further suggest that it would tend to make all meter makers more on an equality if the fees to be paid for testing meters were computed by the number of lights the meter is actually constructed to supply, which should be marked on the badge, without regard to the capacity in feet per revolution, or complete action of the meter.

It might be enacted that the standard light should consume 5 feet per hour, the same as does the standard burner for testing the illuminating power of gas; and the number of lights marked on the badge should be equal to that of the standard lights which the meter is able to maintain with half an inch of pressure at its inlet.

19th January 1870. WILLIAM SUGG.

APPENDIX VIII.

Paper delivered by the Warden of the Standards.—Correspondence, &c. on the Inspection of Weights and Measures used by the Post Office, Customs, and Excise Departments.

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I. *Inspection of Post Office Weights, &c.*

Warden of the Standards to Secretary, Post Office.

Sir, 7, Old Palace Yard, October 13, 1869.

I am instructed by the Chairman of the Standards Commission to call your attention to the inspection of weights and measures used in Post Offices, which has been brought under the consideration of the Standards Commission by one of the Middlesex magistrates in his evidence. He has given one instance within his own knowledge of the weights and scales of a Post Office being very inaccurate, and an overcharge having been made at the same time, his impression being that they were exempt by law from examination by the Inspector.

It would appear from s. 28 of 5 & 6 Will. 4. c. 63. that such weights and scales, being used in places where goods "are weighed for conveyance or carriage," are liable to inspection, unless there is any other express provision to exempt them.

This question includes that of the original verification and stamping of Post Office weights, and consequently the legality of the use in Post Offices of weights not stamped by Inspectors and not of the usual legal denominations.

The French regulations for Post Office weights are contained in the Official Circular of Nov. 25, 1852 (see Second Report of Standards Commission, 1869, Appendix, p. 76). Special weights for despatches are tolerated on condition that they do not represent weights of any legal denomination; but all Post Offices are notwithstanding to be furnished with a set of weights officially stamped, in order that in every case recourse may be had to them on the demand of a third party.

The Standards Commission have now under consideration whether it is expedient for the law to provide that all balances before being sold and used for trading purposes, should be tested and stamped; and the question naturally arises how far such provision should extend to balances and scales used for Post Office services.

I have to request that you will inform me, for the information of the Commission,—

1. Whether there is any express provision of law to exempt the weights and scales used in Post Offices from the visits and examination of Inspectors of weights and measures?

2. Whether, in point of fact, any such inspection is allowed or practised, or prohibited?

3. Whether, in this respect, any distinction is made between Post Offices where no trade is carried on, and where it is?

4. Whether there exists any departmental inspection of Post Office weights and scales, and if so, how far it extends and is considered to be practically efficacious?

5. Whether in Post Offices where trade is carried on, there is any regulation for using the Post Office weights and scales for Post Office services only; or whether, in point of fact, these weights and scales are used also for trade purposes?

6. Whether Post Office weights and scales are provided and kept in order by the Post Office authorities, and at the public expense, for all Post Offices in the United Kingdom, and what is the exact practice in this respect?

7. Whether, in the event of legislation upon the subject, it is expedient to establish a regulation similar to that stated to be in force in France, and expressly to enact that weights and scales used in Post Offices should be liable to inspection by the ordinary Inspectors of weights?

8. Or whether it may be expedient, considering the large number of Post Offices and of weights and scales used for Post Office duties, that one or more special Inspectors of Post Office weights and scales be appointed by the Postmaster-General and subordinate to his authority, who should be furnished with the necessary standard weights, and duly verify, stamp, and periodically inspect all weights and scales used in Post Offices, according to the general instructions to Inspectors to be issued by the Board of Trade for the purposes of maintaining a uniform system?

9. What is the number of Post Offices in the United Kingdom at the present time, distinguishing England and Wales, Scotland, and Ireland, and distinguishing those offices where the weights and scales are furnished and maintained by the Post Office authorities from those (if any) where they are not?

10. And as nearly as may be, the number of scales or other weighing machines, and of weights used in such offices for Post Office duties?

At the same time I shall be glad to be favoured with any observations or suggestions upon the subject, in order that they may be laid before the Commission, who will shortly meet again after the recess, to complete their Report to Her Majesty upon the system of inspection of weights and measures, with a view to legislation in the approaching session.

I am, &c.
(Signed) H. W. Chisholm,
Warden of the Standards.

The Secretary, Post Office.

Memorandum of Statement by Mr. Mellor, Inspector of Weights, &c., Manchester.

With respect to Post Office weights and scales, Mr. Mellor states to me that in Manchester numerous complaints were made to him of their inaccuracy, and of the consequent overcharge to the public. He wrote to the Post Office authorities upon the subject, and the result was that the Post Office keepers in Manchester have requested him from time to time to look to their weights and scales, and let them know when they required adjustment. This adjustment is done by Messrs. De Grave, with whom the Post Office authorities contract for the adjusting all Post Office weights and scales sent to them for that purpose. Mr. Mellor says that this arrangement works well, and has given great satisfaction in Manchester.

October 11, 1869. H. W. Chisholm.

From Secretary, General Post Office, in reply.

General Post Office, London, E.C.,
Sir, December 8, 1869.

The Postmaster-General has had under his consideration your letter of the 18th October last, on the question of the applicability to Post Office scales and weights of the existing law, Act 5 & 6 Will. 4. c. 63., relating to weights and measures.

His Lordship desires me to acquaint you, for the information of the Standards Commission, that this question was some years ago submitted to the law officers of the Crown, who gave it as their opinion that Post Offices and the scales and weights used therein for ascertaining the weight and postage of letters did not come within and were not subject to the provisions of the Act above quoted.

It appears to his Lordship that there is an obvious distinction between the case of scales and weights used by the Post Office for its purposes and those used for the purposes of trade, inasmuch as whatever motive there may be to use incorrect scales and weights in matters of trade, the Post Office can have no such motive for evading the law in this respect. He desires me to state that the Post Office furnishes scales and weights to all the principal Post Offices, including every Money Order Office, throughout the kingdom, and that instructions are laid down for their examination, as well as for the examination of scales and weights used for Post Office purposes but not supplied by the Department, with a view to maintain them in perfect working order, and that it is quite unnecessary to appoint

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special Inspectors for the particular duty of examining the weights and measures, seeing that the work can be sufficiently well done by our own surveyors and their assistants.

At the same time his Lordship has no objection to allow periodically an authoritative inspection of the Post Office scales and weights with a view to their verification, on the understanding that such inspection is to be considered simply in the light of one Department of the Government aiding another, and that it is not to be construed as an admission of the rights of the Inspectors under the Act to inspect such scales and weights. That it should be understood, moreover, that the inspection is not made for the purposes of applying penal consequences to the officers of the Post Office in cases in which the scales and weights may be found defective, it being left to the Department to remedy such defects as may be reported, and that the Post Office shall not bear any expense which may be incurred by the inspection.

His Lordship desires me to transmit to you, for the information of the Standards Commission, the inclosed statement, giving replies, as far as possible, to the questions contained in your letter.

I am, &c.

H. W. Chisholm, Esq., &c. &c. JOHN TILLEY.

Inclosure.

Question 1. Whether there is any express provision of law to exempt the weights and scales used in Post Offices from the visits and examination of Inspectors of weights and measures?

Answer 1. See opinion of the law officers of the Crown given in Post Office letter of 8th December 1869.

Q. 2. Whether, in point of fact, any such inspection is allowed or prohibited?

A. 2. Inspectors of weights, &c. not allowed to inspect Post Office scales and weights.

Q. 3. Whether in this respect any distinction is made between Post Offices where no trade is carried on and where it is?

A. 3. The Post Office does not interfere as regards scales and weights which may be used by any postmaster for trade purposes, and which can therefore be examined by the Inspectors.

Q. 4. Whether there exists any departmental inspection of Post Office weights and scales, and if so, how far it extends and is considered to be practically efficacious?

A. 4. The surveying officers inspect the weights and scales from time to time on visiting the different offices. The inspection is considered practically efficacious. See Post Office letter of 8th December 1869.

Q. 5. Whether in Post Offices where trade is carried on there is any regulation for using the Post Office weights and scales for Post Office services only, or whether, in point of fact, these weights and scales are used also for trade purposes?

A. 5. Weights and scales used in Post Offices are specially constructed for weighing letters only, and are practically useless for trade purposes. If any postmaster or receiver were observed to make use of the official scales and weights in connexion with his trade, serious notice would be taken of the irregularity.

Q. 6. Whether Post Office weights and scales are provided and kept in order by the Post Office authorities, and at the public expense, for all Post Offices in the United Kingdom, and what is the exact practice in this respect?

A. 6. As a rule, every head Post Office and every Money Order Office is furnished with scales and weights at the cost of the Department; also every sub-office and receiving office where, in the opinion of the controller or surveyor, the letters are sufficiently numerous to render it necessary to supply them. They are kept in repair at the expense of the Department.

Q. 7. Whether, in the event of legislation upon the subject, it is expedient to provide for a similar regulation to that stated as in force in France, and expressly to provide that the weights and scales used in Post Offices should be liable to inspection by the ordinary Inspectors of weights?

A. 7. See Post Office letter of 8th December 1869.

Q. 8. Or whether it may be expedient, considering the large number of Post Offices, and of weights and scales used for Post Office duties, that one or more special Inspectors of Post Office weights and scales be appointed by the Postmaster-General, and be under his authority, who should be furnished with the necessary standard weights and scales used in Post Offices according to the general instructions to Inspectors to be issued by the Board of Trade, for the purpose of maintaining a uniform system?

A. 8. See Post Office letter of 8th December 1869.

Q. 9. What is the number of Post Offices in the United Kingdom at the present time, distinguishing England and Wales, Scotland, and Ireland, and distinguishing those offices where the weights and scales are furnished and maintained by the Post Office authorities from those (if any) where they are not?

A. 9. Number of Post Offices in the United Kingdom (present time):—

England	9,611
Scotland	1,474
Ireland	1,811

Number of Post Offices supplied by the Department with scales and weights (present time):—

England	3,305
Scotland	417
Ireland	537

Q. 10. And, as nearly as may be, the number of scales or other weighing machines and of weights used in such offices for Post Office duties?

A. 10. Estimate of the number of scales supplied by the Post Office (present time):—

England	7,178
Scotland	1,050
Ireland	1,208

Estimate of number of weights supplied by the Post Office (present time):—

England	80,290
Scotland	12,740
Ireland	14,090

II. *Inspection of Customs Weights and Measures, &c.*

Warden of the Standards to Secretary, Customs Department.

SIR, 7, Old Palace Yard, October 13, 1869.

I AM requested by the Chairman of the Standards Commission to call your attention to the question of the verification, stamping, and maintenance in due accuracy of the weights, measures, and balances used by officers of the Customs in the discharge of their duties.

It appears from the books of the Standards Department, that the only copies of the standards which have been verified for Customs purposes, are seven measures of capacity, from one gallon to the half gill, inclusive, verified on 10th January 1865, for the Commissioners of Customs, for the use of the Inspector of gaugers.

The Weights and Measures Acts provide only for the verification, stamping, and inspection of weights, measures, and balances used in places where goods are exposed or kept for sale, or are weighed for conveyance and carriage.

I have to request that you will inform me, for the information of the Commission:—

1. Whether there is at present any provision of law for the verification, stamping, and periodical inspection of weights, measures, and balances used by Customs officers in the discharge of their duties?

2. Whether there is any departmental regulation for these objects?

3. What means are actually used to secure the maintenance of those weights, measures, and balaces in due accuracy?

4. What is the number of Custom offices in England and Wales, Scotland, and Ireland respectively using weights and measures for Customs purposes?

5. What is the number, as nearly as can be stated, of weights, measures, and balances so used in these offices, distinguishing and describing any gauging instrument?

6. What description of alcohol meter is used, and how many alcohol meters?

7. How far the alcohol meter is practically useful for testing spirituous liquors which are sweetened?

8. How far it would be expedient, in the event of legislation upon the subject, that these weighing and measuring instruments should be made by law directly liable to official verification, stamping, and periodical inspection?

9. Whether it is expedient that such duties should be discharged by the local Inspectors of weights and measures, or by a special Inspector under the authority of the Commissioners of Customs, to be furnished with officially verified standards, and who should exercise his duties in accordance with general official instructions to Inspectors of weights and measures, to be issued by the Board of Trade?

At the same time I shall be glad to be favoured with any observations or suggestions upon the subject, in order that

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they may be laid before the Commission, who will shortly reassemble after the recess to complete their Report to Her Majesty upon the system of inspection of weights and measures, with a view to legislation in the approaching session.

I am, &c.

The Secretary, Customs Departrment. (Signed) H. W. Chisholm, Warden of the Standards.

From Secretary, Customs Department, in reply.

Sir, Custom House, E.C., January 13, 1870.

In compliance with the request of the Chairman of the Standards Commission, signified by your letter of the 13th October last, I am desired by the Commissioners of Customs to furnish you with the following information in reply to the questions put in your letter, on the subject of the weights, measures, and balances used by the officers of this revenue in the discharge of their duties:—

Q. 1. Whether there is at present any provision of law for the verification, stamping, and periodical inspection of weights, measures, and balances used by Customs officers in the discharge of their duties?

A. 1. In raising the charge for duties, the Customs officers make use of:—

Weights. Scales. Beams. } For dry goods.

and Gauging Instruments. Measures. Hydrometers. } For wet goods.

There are no measures whatever now required for dry goods, such as corn, fruit, &c.

There is no legal provision at present for the stamping or periodical verification of any of the articles used by officers of Customs in raising the charge for duties, but departmental regulation and practice provide ample security for the accuracy of all such articles.

The question was, in November 1835, submitted to the law officers of the Crown, whether the law required that weights and measures used by officers of Customs should be stamped; and the opinion given by the Attorney and Solicitor General of the day, was that weights and measures so used for the purposes of the revenue need not be stamped, whether belonging to the Crown or being the property of any corporation or individual.

This opinion was subsequently modified or explained, upon the same law officers being called upon to give an opinion in reference to weights belonging to the West India Dock Company, which were commonly used by the officers of Customs for weighing dutiable goods, but were also used at various times for certain trade purposes; and in this case the law officers declared that such weights could not be used for weighing goods upon a transfer of such goods between merchant and merchant without being stamped.

Q. 2. Whether there is any departmental regulation for these objects?

A. 2. Although the Customs department was thus declared to be by law free from the regulations imposed upon traders and dealers, yet, so far as the spirit and provisions of the law for the very important point of ensuring the correctness of weights and measures could be advantageously introduced into the regulations and practice, they have been constantly availed of.

Thus although it would be extremely expensive and inconvenient to have all the numerous weights belonging to the Crown tested and stamped, as those used by traders are required to be, sets of brass weights duly and legally stamped by the properly appointed authorities have always been furnished to the different principal ports, and when necessary to various stations at such ports.

Eight hundred and sixty such standards are in use in the United Kingdom.

By these weights, carefully kept as standards, all the weights used by the Customs are, from time to time, at certain specified periods, tested by officers duly appointed and perfectly competent for such duty; and whenever the weights so tested are found to be in the least degree inaccurate they are at once withdrawn to be re-adjusted.

Formerly, when our import trade was comparatively small, and the places legally approved for the landing, weighing, and examining foreign merchandise were very few, the Crown found all the weights necessary for assessing duties; but gradually, as trade expanded and greater facilities and more numerous localities for landing goods were required, it was found inconvenient, and at last impossible for the Crown to supply weights, beams, and scales at every approved warehouse, dock, wharf, or quay in the United Kingdom; and, for public convenience, the proprietors of such places in many cases voluntarily provided weighing materials.

With the enormous increase of our trade, however, the matter became of too much importance to be left to the goodwill of proprietors of docks, wharves, &c., and consequently the obligation to provide weighing materials was imposed upon the promoters of docks and wharves by the public Legislature of the country.

The Act 10 & 11 Victoria, cap. 27. (commonly called the "Harbours Act") requires, section 14, that the promoters of all docks, piers, harbours, &c., with whose local and private Acts that (the Harbours) Act is incorporated, shall provide and maintain in proper repair all necessary weighing materials.

And since the passing of that Act the Government have exercised a most watchful and jealous supervision over all local private Acts for docks, piers, &c., and have insisted on the incorporation of the Harbours Act.

Q. 3. What means are actually used to secure the maintenance of these weights, measures, and balances in due accuracy?

A. 3. In consequence of the Act above mentioned, and the decrease in the number of dutiable articles, the Crown's weights have gradually been withdrawn, and at this present time weights belonging to the Crown are in London only used on the quays of the London and East India Docks, and at the legal quays situated between the Tower and London Bridge. At all other stations the weighing materials belong to the dock company or wharfinger, and are subject to the general provisions of the law in regard to stamping, inspection, &c.

As regards the scales and beams, the departmental supervision is most exact and constant. Every officer, before commencing to weigh goods for duty, is strictly enjoined to see that the scales and beams are in good order, whether they belong to the Crown or not, by balancing and otherwise testing them, and this operation he is bound to repeat after every occasional break or cessation.

The surveyor in going his rounds is also bound, every time he visits an officer weighing goods, to test the accuracy of the beams and scales, and at the larger ports the inspectors-general also exercise a similar check.

Thus every scale and beam will, when in use, be tested three or four times a day, and if it be found at all incorrect it is immediately withdrawn.

In addition to these precautions, in London and at some of the principal ports, the Crown has a contract with the scale-maker to visit, inspect, and clean all beams at a stated period.

Q. 4. What is the number of Customs offices in England and Wales, Scotland, and Ireland, respectively, using weights and measures for Customs purposes?

A. 4. There are 135 ports in the United Kingdom, and weighing materials are more or less used by all the officers engaged in waterside duty at all the stations of such ports. The gauging instruments and measures are used only at the chief ports where wines and spirits are allowed to be imported or to be removed coastwise under bond.

Q. 5. What is the number, as nearly as can be stated, of weights, measures, and balances so used in those offices, distinguishing and describing any gauging instrument?

A. 5. There are used by the officers of Customs in the United Kingdom the following, being Crown property, viz.:—

Scales and beams - - - -	695
Weights, other than brass standards	11,076
Measures - - - -	1,213
Gauging instruments - - -	505 sets.
Hydrometers - - -	674

The gauging instruments used by the Customs consist of—

The bung or dipping rod, to measure the internal diameter and depth of liquid.

The long callipers, to ascertain the length of the cask.

The short or cross callipers, for taking the external diameter of the cask.

The head rod, which serves the double purpose of a measure for taking the diameter of the head of the cask, and of a calculating machine or sliding rule for calculating the quantity of liquid in the cask.

These rules being cut to lengths marked in feet and inches are easily checked by comparing one with another. Their exact accuracy is ascertained in the first instance in London by officers appointed for the purpose, before they are issued to the stations in London or to the out-ports. And the

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practical officers are strictly enjoined to test this accuracy every day before commencing to gauge, and it is also the duty of the superior officers who inspect the gaugers to test the instruments.

The measures for wet goods furnished by the Crown to the officers of Customs usually consist of—

1 gill ($\frac{1}{32}$ gallon) graduated to tenths.
8 gills ($\frac{1}{4}$ gallon) graduated to $\frac{1}{4}$ gill.
12 gills ($\frac{3}{8}$ gallon) graduated to $\frac{1}{4}$ gill from 8 gills upwards.

These measures are all of glass. Before they are issued they are all carefully tested by the standard measures furnished by the Exchequer to the Customs in January 1865. They are used by the practical officers not only for measuring perfumery, cordials, and liqueurs, but also for testing the accuracy of the metal measures furnished for Customs purposes by dock companies and others.

Q. 6. What description of alcohol meter is used, and how many alcohol meters are used?

A. 6. The Customs laws impose a duty on spirits according to the proof gallon as ascertained by Sikes's hydrometer.

This, therefore, is the alcohol meter used by the Customs. It is an instrument formed so as to show the gravity of any mixture of alcohol and water in which it is immersed. Sikes, after numerous experiments, drew up a set of tables showing the specific gravity of mixtures of absolute alcohol with different quantities of water at different temperatures, and then constructed an instrument which, by means of a graduated stem passing through a bulb, and carrying shifting weights at its extremity, would show the specific gravity of the mixture tested, the temperature being ascertained by the immersion of a Fahrenheit thermometer. The bulb of the hydrometer being thin and hollow renders the instrument very liable to injury from abrasion or rough treatment, and from the incrustation of the colouring matters of the liquids tested, and from any of these causes it is easily put out of order.

It would be perfectly useless, therefore, to stamp it, for although it might be quite correct at the time of stamping, any slight accident might render it inaccurate the moment after.

The greatest care, however, is taken to ensure the accuracy of these instruments. They are furnished by Messrs. Dring and Fage (who are the successors of Sikes), according to the provisions of the Act 58 Geo. 3. cap. 28. They are all very carefully tested by standard instruments in London before being issued to the officers, and a sufficient number is issued to each port or station, where they are required to keep one instrument as a standard, viz., the last one received from London. By these standards the hydrometers are tested once a week by the superior officers, a record of such test being kept.

The Commissioners and Surveyors General, when they visit the ports on inspection, carry with them an accurately adjusted instrument, by which they test the instruments in use.

Whenever an hydrometer is found to be inaccurate to the extent of 0·2 of a degree marked on the stem, it is returned to London for re-adjustment.

Q. 7. How far the alcohol meter is practically useful for testing spirituous liquors which are sweetened?

A. 7. Sikes's tables and instruments being formed with regard alone to mixtures of absolute alcohol and pure water, *i.e.*, plain spirits, are not applicable to liquids into which any other ingredients, such as sweetening matter, are introduced.

The Customs law provides a specific rate of 14*s.* per liquid gallon for spirits so sweetened or mixed that the strength thereof cannot be ascertained by Sikes's hydrometer, which is never used in reference to such liquids. Even colouring matter will, of course, to a certain extent, affect the gravity of a liquid, but only to so slight an extent as not to render it of importance, and, therefore, the law distinctly classes brandy and rum, both of which are coloured, as spirits the strength of which can be ascertained by Sikes's hydrometer. To prevent fraud, however, in cases of very highly coloured spirits, the officers resort to distillation to try the actual disturbance of density caused by the colouring matter, and if it should prove excessive, the 14*s.* per gallon duty is charged.

Q. 8. How far it would be expedient, in the event of legislation upon the subject, that these weighing and measuring instruments should be made by law directly liable to official verification, stamping, and periodical inspection?

A. 8. It will be seen from the foregoing observations that the spirit of the law, so far as verification of the accuracy of all the weights, measures, &c. is concerned, has been duly carried out, and that constant inspection has been provided for by officers holding responsible situations under the Crown, and who, from constantly using the instruments, are possessed of practical skill and knowledge which must tend to render their test much more efficient than that of a person only partially acquainted with the nature of the things to be tested.

Q. 9. Whether it is expedient that such duties should be discharged by the local Inspectors of weights and measures, or by a special inspector under the authority of the Commissioners of Customs, to be furnished with officially verified standards, and who should exercise his duties in accordance with general official instructions to Inspectors of weights and measures, to be issued by the Board of Trade?

A. 9. It does not appear necessary or expedient that any fresh legislation should be introduced upon this subject.

Stamping may be effective in the case of brass or other metal weights, which from their nature are not liable to be altered by any slight blow or accident, but it would be impossible in the case of glass measures and hydrometers.

The interference of local Inspectors would be in many cases inconvenient, and would lead to a very heavy charge upon the public, for which no equivalent benefit would be yielded.

It must also be borne in mind that there does not exist the same necessity for the interference of Inspectors between the Crown and the merchant as between the dealer and the public.

The officers who use the weights or measures have no interest in charging too much duty, while the interest of the Crown is too great to omit any possible precaution whatever against the loss of duty by incorrect means of levying the same.

I am, &c.
GEORGE DICKENS,
H. W. Chisholm, Esq. Secretary.

III.—*Inspection of Excise Weights and Measures, &c.*

Warden of the Standards to Secretary, Excise Department, Inland Revenue.

SIR, 7, Old Palace Yard, October 13, 1869.

I AM requested by the Chairman of the Standards Commission to call your attention to the question of the verification, stamping, and maintenance in due accuracy of the weights and measures used by Excise officers in the discharge of their duties.

At the present time the Weights and Measures Acts appear to provide only for the verification, stamping, and periodical inspection of weights, measures, and balances used in places where goods are exposed or kept for sale, or are weighed for conveyance or carriage.

I am to request that you will furnish to me, for the information of the Commission, answers to the following questions:—

1. How many separate districts of excise, and officers of excise are there, in which, and by whom, weights, measures, or balances are used for excise purposes?

2. What number (as near as may be) of weighing and measuring instruments are so used, distinguishing and describing any gauging instrument?

3. What description of alcohol meter is used, and what number are in use?

4. Is there any provision of law, official regulation, or ordinary departmental practice of originally verifying, stamping, and periodically testing these weighing and measuring instruments?

5. How far would it be expedient, in the event of legislation upon the subject of weights and measures, that these weighing and measuring instruments so used for excise purposes should be made by law liable to official verification and stamping, and periodical inspection?

6. Whether it would be expedient that such duties should be discharged by the local Inspectors of weights and measures, or by a special Inspector under the authority of the Excise Department, to be furnished with duly verified standards, and who should exercise his duties in accordance with general official instructions to Inspectors of weights and measures, to be issued by the Board of Trade?

At the same time I shall be glad to be favoured with any observations or suggestions upon the subject, in order that they may be laid before the Standards Commission, who will shortly re-assemble after the recess, to complete their report to Her Majesty upon the system of inspection of

Appendix VIII.—*continued.*

weights and measures in this kingdom, with a view to legislation in the approaching session.

I am, &c.

(Signed) H. W. Chisholm,
Warden of the Standards.

The Secretary, Excise Department,
Inland Revenue.

From Secretary, Inland Revenue Department, in reply.

Inland Revenue, Somerset House,
Sir, London, W.C., November 23, 1869.

In compliance with the request contained in your letter of the 13th ultimo, I am instructed by the Commissioners of Inland Revenue to give you answers as follows to the several questions put by you in reference to the weights, measures, and instruments used by excise officers, viz.:—

Question 1. How many separate districts of excise and officers of excise are there in which, and by whom, weights, measures, and balances are used for excise purposes?

Answer 1. There are in Great Britain and Ireland 2,540 separate stations in which weights, measures, balances, alcohol meters, gravimeters, or gauging instruments are used by 3,440 officers for excise purposes.

There are 91 collectors who use balances only for weighing gold coin; 400 supervisors who have charge of central stations, called "districts," each of which includes upon an average about five stations; ten chemical officers stationed in country ports who use balances; and the remainder are officers employed in the general business of the excise who use some of the instruments enumerated above.

In addition to the foregoing there is in the chief office a laboratory in which several balances are in constant use in chemical analyses.

Q. 2. What number, as near as may be, of weighing and measuring instruments are so used, distinguishing and describing any gauging instruments?

A. 2. There are (the property of various traders) about 1,680 common scales, capable of weighing from 10 to 15 cwt., with weights from 1 lb. to 56 lb.; about 500 sets of copper measures from half pint to a gallon, and about 1,100 imperial bushel measures.

The gauging instruments, from 17,000 to 18,000 in number, are callipers for cask gauging; rules graduated to inches and tenths of an inch for measuring the depths of liquids in utensils of ascertained capacity and malt in process of manufacture; float rods graduated as above for gauging liquids when fermenting; sliding dimension rules for ascertaining diameters, &c. of fixed utensils which require to be tabulated to show their capacity at any given depth; sliding rules of various kinds founded upon the principle of logarithms and used for facilitating or checking mathematical calculations; and common box tapes for measuring malt floors.

Q. 3. What description of alcohol meter is used, and what number are used?

A. 3. The alcohol meter used is Sikes's hydrometer (established by the Act 58 Geo. 3. cap. 28.), which is a gilded brass instrument whose action depends upon the principle that all floating bodies sink until they have displaced their own weight of the liquid in which they float.

This instrument consists of a hollow ball with two stems, each placed at the opposite pole to the other.

The lower stem, which sinks into the liquid, carries the weight, and the upper, which is graduated, always floats to some extent above the surface.

By means of nine weights and 50 divisions of the upper stem the hydrometer has a scale of 500 parts, and its indications denote in connexion with a thermometer and Sikes's tables the strength of unsweetened spirits or the proportion per cent. of proof spirit in the sample examined, and range from 70 per cent. over proof down to water, and from a density of 0·8156 to 1·000.

Each subdivision of the scale represents, upon an average, three-tenths per cent. of proof spirit at any temperature from 30° to 80° Fahrenheit.

"Sikes's table of the concentrated strength of spirits" referred to above, and used under sanction of the Act 58 Geo. 3. cap. 28., is founded upon tabulated results of experiments made by Gilpin for the Royal Society; and Gilpin's tables were verified so recently as 1836 by experiments made under the direction of a committee of that society.

There are about 1,550 hydrometers in use.

A gravimeter, called Bates' Saccharometer, is also used under legal sanction. This is a gilded instrument constructed upon the same principle as the hydrometer, namely, that of weighing the bulk of fluid displaced by the instrument when floating in it, but it differs from the hydrometer in shape and in other respects.

It has a hollow ball or spindle, in the opposite ends of which are a stem and a loop. The stem is graduated downwards from zero to 30°, and the divisions of the scale constantly diminish in the same direction, and in such a manner that each division accurately indicates the one-thousandth part (called a degree) of the specific gravity of water.

There are five weights, each of which when used is fixed into the loop and sinks into the liquid, and each in succession in connexion with the stem extends the range of indication by 30 degrees.

At the temperature of 60° Fahrenheit this instrument correctly shows the specific gravities or saccharine richness of worts fermented for distillation, from a density of 30 degrees below to 120 degrees above water, or from 0·970 to 1·120; but it is always used in connexion with a thermometer and a table for the correction of its indications when the temperature is above or below 60°. The table ranges from a temperature of 50° to 150° Fahrenheit, and its indication, so far as relates to this saccharometer, extend from one-tenth of a degree to 141 degrees of specific gravity.

There are about 330 saccharometers in use.

Q. 4. Is there any provision of law, official regulation, or ordinary department practice of originally verifying, stamping, and periodically testing these weighing and measuring instruments?

A. 4. The common weights and measures used are, for the most part, the property of traders who are markers of or dealers in exciseable commodities, and are required by law to provide and maintain for the use of the officers accurate scales, weights, and measures. These are stamped by the local Inspectors of weights and measures; and in some of the more important districts the supervisors are provided with standard weights for the purpose of testing those belonging to traders under their survey.

The hydrometers and saccharometers as well as glass measures for trying the contents of bottles are, before being issued for use, all carefully tested at the chief office by a principal officer of the department, with standards which are from time to time tested in the Board's laboratory, in accordance with the principles on which the instruments are constructed and applied.

The officers in the country regard such instruments received from the chief office as standards, and with them constantly test those in use. When one of the latter becomes defective it is at once taken out of use and returned to the chief office for adjustment.

The gauging instruments and sliding rules which are supplied to officers on their first appointment, and those sent to replace defective instruments in distilleries and warehouses, are examined by competent officers before they are sent from the chief office.

The supervisor of every district is required by the Board to satisfy himself that the officers under his superintendence are provided with proper instruments, and to certify the fact periodically at least eight times a year.

The surveying general examiners too, on their occasional and unexpected visits to traders and stations, test the accuracy of the hydrometers and saccharometers with standards which they carry with them, and they also try the scales and weights, and occasionally the measures.

Q. 5. How far would it be expedient, in the event of legislation on the subject of weights and measures, that these weighing and measuring instruments so used for excise purposes should be made by law liable to official verification and stamping, and periodical inspection?

A. 5. The hydrometers and saccharometers are of such delicate construction and action that stamping them would be fatal to their accuracy, and it is doubtful whether any legislative enactment would render more certain the accuracy of gauging and other instruments supplied by the Board to their officers under the regulations stated in answer to Question No. 4.

It would also be impossible to provide for the almost daily testing of such instruments in any other way than by placing a standard in the hands of the officers using them.

Q. 6. Whether it would be expedient that such duties should be discharged by the local Inspectors of weights and measures, or by a special Inspector, under

Appendix VIII.—*continued.*

the authority of the Excise Department, to be furnished with duly verified standards, and who should exercise his duties in accordance with general instructions to Inspectors of weights and measures, to be issued by the Board of Trade?

A. 6. Such is the peculiar nature of some of the instruments described above that it is scarcely likely that a local Inspector of weights and measures would, in all cases, be competent to verify their accuracy, and, should any alteration of the present system be deemed necessary, a special Inspector, selected by the Board of Inland Revenue and furnished with proper standards, would be the most eligible officer to discharge the duties in question.

I am, &c.

(Signed) ADAM YOUNG,
Secretary.

H. W. Chisholm, Esq.

APPENDIX IX.

PAPER delivered by the WARDEN of the STANDARDS.—CORRESPONDENCE, &c., on the proposed CONSTRUCTION and LEGALISATION of NEW STANDARD WEIGHTS of $\frac{1}{3}$ oz. and $\frac{2}{3}$ oz. for FOREIGN POSTAL SERVICES.

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The Postmaster-General to the Board of Trade.

SIR, Post Office.

I AM directed by the Postmaster-General to request that you will state to the Lords of the Committee of Privy Council for Trade that a postal convention has just been concluded between Her Majesty and the Emperor of the French, under the provisions of which the weight of a single letter posted in this country addressed to France will, from a date to be agreed upon as soon as the ratification of the convention has been exchanged, be increased from $\frac{1}{4}$ oz. to $\frac{1}{3}$ oz.

Having instructed the solicitor of this department to prepare the Treasury Warrant, which will be necessary for carrying the arrangements agreed upon into effect, the Postmaster-General has received from him a report in which he suggests that a secondary standard weight of $\frac{1}{3}$ oz. should be constructed under the provisions of the Act 18 & 19 Vict. c. 72., and 29 & 30 Vict. c. 82., and should, if the Board of Trade deem such a course necessary, be stamped.

I am to transmit a copy of this report, and to request that it may be laid before the Lords of the Committee of Privy Council for Trade.

I am, &c.

T. H. Farrer, Esq., JOHN TILLEY.
Secretary, Board of Trade.

Report by the Solicitor to the Post Office.

The Act 5 Geo. 4. c. 74. s. 11. enacts that copies and models of the standard pound and of such parts and multiples thereof as the Treasury shall judge expedient, shall within three months after the passing of the Act be made and deposited in the Exchequer.

The Act 18 & 19 Vict. c. 72. s. 6. enacts that *all weights* which shall be verified and authenticated by comparison with the Imperial Standards in such manner as Her Majesty shall by any Orders in Council from time to time direct, shall be deemed and taken to be legal and secondary weights.

The Act 29 & 30 Vict. c. 82. transfers the custody, &c. of the Imperial Standards to the Board of Trade, and enacts, s. 6., that wherever at any time any secondary standard of weight has been derived from the Imperial Standard and duly verified, it shall be lawful for Her Majesty by an Order in Council to declare the same to be a legal secondary standard of weight.

There can be no doubt whatever that according to the ordinary meaning of the word "aliquot," and indeed according to any meaning which can be reasonably attributed to that word, $\frac{1}{3}$ of an ounce is an "aliquot" part of an ounce, and although I find in the Act 5 & 6 Will. 4. c. 63. the words "some aliquot part," such at the half, the quarter, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$ parts thereof (*i.e.* measures and weights), I think after careful consideration there is nothing therein as to weights and measures which expressly or by reasonable implication prohibits the use of a weight of $\frac{1}{3}$ oz., but that the words cited are used simply by way of illustration.

But I think that a difficulty might arise by reason of its not being hitherto considered necessary or useful to supply Inspectors of weights with means of verifying and stamping weights of $\frac{1}{3}$ oz. in compliance with provisions of the 21st section of the Act 5 & 6 Will. 4. c. 63., and this difficulty ought to be foreseen and provided against.

The provisions of 29 & 30 Vict. c. 82., and of the other Acts I have mentioned, seem to supply the means of obviating this difficulty, and with that view I think that simultaneously with the preparation of the necessary Treasury Warrant it would be prudent to procure a secondary standard of $\frac{1}{3}$ oz., to be constructed, even though it should be held that either by reason of their being officers of the Crown, or on any other ground, the Postmaster-General and his officers are not within the provisions of the Act 5 & 6 Will. 4.

For in order to carry the convention into full effect it will be necessary, or at all events convenient, that not only the officers of the Post Office but also the public should be supplied with the means of ascertaining the exact weight of their foreign letters.

Now the way to carry this out will be to communicate with the Board of Trade with a view, if they concur in the propriety thereof, to their causing such a secondary standard to be constructed, and the Postmaster-General will at the same time probably think it wise to ask them to consider whether under some or one of the Acts mentioned the new weight of $\frac{1}{3}$ oz. should not be stamped.

November 3, 1869. W. H. ASHURST.

Remarks by the Warden of the Standards.

IT is probable that this application from the Postmaster-General has been mainly caused by a letter from me to the Secretary of the Post Office, dated 13th October 1869, a copy of which is enclosed, upon the subject of Post Office weights, and asking for information to be laid before the Standards Commission. No reply to this letter has yet been received. No. 1. (See App. VIII., p. 312.)

Information had been given to me that a large number of $\frac{1}{3}$ oz. weights had been constructed for Post Office purposes under the directions of the Postmaster-General, and in fact I have one now before me, a flat brass weight marked $\frac{1}{3}$, but not stamped by an Inspector. One object of my letter was to question the legality of the use of any such unstamped weight, for which there was no legal standard.

I may add that brass weights of $\frac{1}{4}$ oz. for foreign letters are now largely in use in this country. They are marked **F**, but so far as I have observed, they are not stamped by Inspectors, although the equivalent weight of 4 drams is included in a set of copies of standard avoirdupois weights.

Appendix IX.—*continued.*

No. 2. (See App. VI., p. 257.)

As regards any difficulty from the exercise of powers of Inspectors of weights and measures in the use of such weights of $\frac{1}{3}$ oz., if unstamped, they being primâ facie liable to inspection under s. 21 of 5 & 6 Will. 4. c. 63., as to be used "for the making of charges on the conveyance of any "goods or merchandise," and also as regards the legal construction of the word "aliquot," referred to in the report of the solicitor to the Post Office, I may call attention to my letter of 17th April 1868, to Messrs. De Grave, a copy of which is enclosed.

Mr. Ashurst intimates that it might be held that "by "reason of their *being officers of the Crown*, or on other "ground, the Postmaster and his officers are not within "the provisions of the Weights and Measures Act, 5 & 6 "Will. 4. c. 63." I apprehend that in order to exempt officers of any public department under the Crown from being subject to the direct provisions of a public Act of Parliament, sufficient grounds of exemption must be clearly shown. A case in point has, however, recently arisen, with reference to the inspection of weights and measures in canteens in barracks. A departmental regulation appears to have been laid down by the War Office, that Inspectors should not be permitted to inspect canteens, and the Inspector at Hounslow being refused admittance, summoned the adjutant and serjeant for obstructing him in the performance of his duty, and both were fined by the magistrates under the provisions of the Act 5 & 6 Will. 4. c. 63. The particulars of this case may be seen from the enclosed correspondence, laid before the Standards Commission.

No. 3. (See App. VI., p. 257.)

In the letter from the Postmaster-General, it is suggested that a new secondary standard weight of $\frac{1}{3}$ oz. should now be constructed and legalised, under s. 6 of the Standards Act, 1866, 29 & 30 Vict. c. 82, with the view, if deemed necessary, of stamping the post office $\frac{1}{3}$ oz. weights.

Two subjects for consideration here arise; I. The expediency of establishing such new standard; II. The best mode of carrying the suggestion into effect.

I. If these weights of $\frac{1}{3}$ oz. are to be generally used for weighing letters, both by postal officers and the public, there can be little doubt of the expediency of legalising a standard for such weights.

But the following considerations may deserve notice:—

1. That $\frac{1}{3}$ oz. avoirdupois is equivalent very nearly to $9\frac{1}{2}$ grammes of metric weight (exactly 9·44985), and 10 grammes, the assumed equivalent in France of $\frac{1}{3}$ oz., are equal to 0·35274 oz., being about $8\frac{1}{2}$ grains (8·49015) in excess of $\frac{1}{3}$ oz.

2. There is now in the Standards Department, an accurately verified metric weight of 10 grammes, and a comparison with it of the $\frac{1}{3}$ oz. weight, constructed for post office purposes, shows the former to be heavier by 8·83 grains.

3. The Standards Commission have recommended in their Second Report that the metric system should be legalised in this country, and that metric weights and measures should be adopted by public departments, especially the Post Office.

4. The metric system will probably within a short period be formerly established in all civilised countries, as the International System of Weights and Measures, by means of the proposed International Standards Commission at Paris.

5. When the metric system was legalised in the United States of North America, in 1866, the use in Post Offices of weights of the denomination of grammes was also authorised; and for postal purposes, one half ounce avoirdupois was to be deemed and taken as the equivalent of 15 grammes (it being exactly equal to 14·17477 grammes).

6. That it would be advantageous in this country to have the benefit of the additional weight of $8\frac{1}{2}$ grains in every single letter sent or received from France, and more especially in multiples of a single postage.

7. Under these circumstances, and if the terms of the Convention with France will allow, would it not be better, instead of constructing and legalising a standard and using a postal weight of $\frac{1}{3}$ oz., at once by a short Act to legalise metric standards of the weight of 10 grammes and its multiples, which are now in the Standards Department, being accurately verified in relation to the primary standard kilogram at Paris, and to legalise also the use of metric gramme weights for foreign postal purposes.

8. If time will not allow of the delay until an Act can be passed for the purpose, a standard weight of 0·35274 oz., to be duly derived from the Imperial Standard pound, might under the existing law be legalised by Order in Council for Post Office services only, as exactly equivalent to 10 grammes metric weight, and it might become a 10-gramme weight when the use of metric weights should be legalised. In this case multiples would also be required.

II. On the hypothesis that arrangements are so far completed that the use of $\frac{1}{3}$ oz. weights for foreign postal services is now determined upon, I proceed to state the steps which might be taken for constructing and legalising a standard of this weight.

It is presumed that one standard only would be required, as a duplicate weight of $\frac{1}{3}$ oz., together with the existing ounce weights, would be sufficient for all multiples. It may also be presumed that in order to avoid confusion and mistakes that might occur from the use by the public for commercial purposes of nearly similar weights of $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$ oz., the legal use of $\frac{1}{3}$ oz. weights should be restricted to postal purposes.

On receiving instructions to this effect from the Board of Trade, I could immediately communicate with the Chairman of the Standards Commission, with the view to an early meeting of the Commission to consider the subject. Under the terms of the Royal Warrant, they are to inquire and report to Her Majesty from time to time what additions to the existing standards are in their judgment required, to direct and superintend the steps necessary to be taken until such standards are in perfect condition, and to report when they are fit standards for the comparison and verification of any weights and measures in pursuance of the Standards Act of 1866. Meanwhile, with the approval and sanction of the Commission, the construction and verification of the new standard $\frac{1}{3}$ oz. weight might be proceeded with under my direction, and the Order in Council for its legalisation might be consequent upon the report of the Commission.

But I feel bound to express my conviction that under all the circumstances of the case, the Commission would entertain the strongest objections to the establishment at the present time of a standard $\frac{1}{3}$ oz. weight, if the object could be attained by legalising a metric 10-gramme weight.

Whichever course may be adopted, as it would be the first instance of a new standard being legalised, I should suggest, as forming a convenient precedent, that upon the issue of the Order in Council, I should send a circular letter to the several Inspectors of weights and measures in the United Kingdom for their information and guidance, in order that they might be furnished with such copies of the new standard as may be required.

November 9, 1869. H. W. Chisholm.

P.S.—Since writing the above remarks, I have submitted them to the Astronomer Royal, and in a note dated 10th November he says,—

"In the general spirit and expression of your draft memorandum (sent to me last evening) I entirely concur, and I make the following observations only as indicating that one of the alternative plans to which I should wish to give my influence.

"I incline *most strongly* to the opinion that the metric weight of 10 grammes ought to be adopted, and *not* the $\frac{1}{3}$ avoirdupois ounce. It appears to me that the case before us is one in which the characteristics of the use of the different systems come out with their fullest force, and I have no doubt that this, when explained, will be entirely recognised by every member of the Commission. The idea of division by 3 is totally alien to the genius of the avoirdupois scale. The adoption of the metric system is recommended as *international*, and here is presented an *international* arrangement, harmoniously adapted to the metric scale, and most inharmoniously forced into the avoirdupois scale. I should, in the memorandum, broadly recommend—

"That the stock of $\frac{1}{3}$ oz. weights be at once sacrificed.

"That the 10-gramme weight be at once adopted by the Post Office, and legalised as best may be.

"I will remark that, before this is done, a general decision must be made (though applied, for the moment, only to this single instance) as to the *form* of the metric weights."

As to the last point mentioned in the Astronomer Royal's note, I may add that a provision of law requiring metric weights and measures, when legalised in this country, to be of a distinctive form or character to prevent as far as possible those of the Imperial and Metric systems from being accidentally or fraudulently substituted for each other, has been already recommended in the Second Report of the Standards Commission, as in their judgment requisite. Sufficient information to determine their recommendation of a distinctive form of metric weights has been laid before the Commission, and the question is now ripe for decision.

I now await only a further communication from the Board of Trade to bring this matter without delay under the consideration of the Commission.

10 November. H. W. C.

Appendix IX.—*continued.*

Memorandum of further Proceedings.

By Minute 20th November, the Board of Trade expressed their entire concurrence with the views stated in the remarks of the Warden of the Standards, dated 9–10th Nov., and with the opinions of the Astronomer Royal, and they invited the Standards Commission to express their opinion on the subject. A reply to this effect was sent to the Post Office on 2nd December by the Secretary of the Board of Trade.

In the meantime, at their meeting on 19th November, the Standards Commission stated their strong objection against the introduction of a Post Office weight of $\frac{1}{3}$ ounce for foreign letters, when so excellent an opportunity offered itself for introducing the Metric 10 gramme weight as an international weight; and they concurred generally with the views stated in the remarks of 9–10th November.

This opinion was communicated to the Board of Trade on 2nd December by the Warden of the Standards, who stated that the Commission would be prepared to pass a formal resolution upon the subject upon being further informed of the views taken by the Post Office of the proposed use of the 10 gramme weight as a unit, and of the terms of the new Postal Convention with France; and for this object, suggested that a communication to this effect shall be made to the Post Office by the Board of Trade, and that copies of the printed papers of the Commission upon this subject should be transmitted to the Post Office for any observations.

At the meeting of the Commission on 21st December, the Warden reported the state of the case as it then stood. The Chairman thought that a special meeting of the Commission would not be required upon the subject, as the Warden was entirely in possession of the views of the Commission, and might be prepared to act upon them.

In the meantime, the following Table of equivalents of Imperial and Metric postal weights has been drawn up by the Warden of the Standards:—

Equivalents of Imperial and Metric Postal Weights.

Grains.		Grammes.
1 oz. or 437·5	=	28·34954
½ oz. or 218·75000	=	14·17477
⅓ oz. or 145·83333	=	9·44985
¼ oz. or 109·37500	=	7·08738

Grammes.		Grains.
15	= 0·52911 oz. =	231·48522
10	= 0·35274 oz. =	154·32348
7½	= 0·26455 oz. =	115·74261

and consequently,

Grammes.	Gramme.	Grains.
1 oz. = 30	— 1·65046 or —	25·47044
½ oz. = 15	— 0·82523 or —	12·73522
⅓ oz. = 10	— 0·55015 or —	8·49015
¼ oz. = 7½	— 0·41262 or —	6·36761

The metric postal weight is thus heavier than its nearest imperial equivalent by 5½ per cent.

The following correspondence has since passed:—

The Assistant (Commercial) Secretary, Board of Trade, to the Secretary, Post Office.

Sir, December 7, 1869.

With reference to my letter of the 2nd inst., I am directed by the Lords of the Committee of Privy Council for Trade to request that you will state to the Postmaster-General that the question of the construction of a secondary standard of ⅓ ounce has been submitted to the Standards Commission, and that before taking further steps in the matter they think it desirable that the enclosed minutes of proceedings and other papers printed by the Commission should be brought under the consideration of the Post Office.

The Commission appears to be of opinion that the present occasion should be taken to adopt a 10 gramme standard of weight for the purposes of the Convention instead of one of ⅓ of an ounce, and I am to state that my Lords entirely concur in this view.

If after reconsideration of the question the Postmaster-General should arrive at the same conclusion, my Lords will be prepared to recommend that the construction of a 10 gramme weight should be at once legalised, either by a short Act of Parliament or an Order in Council, as may be directed by the legal advisers of Her Majesty's Government.

My Lords at the same time request that they may be favoured with a copy of the Postal Convention with France, referred to in your letter of the 4th November.

I have, &c.

The Secretary, Post Office. Louis Mallet.

The Secretary of the Treasury to the Secretary of the Board of Trade.

Sir, Treasury Chambers, February 3, 1870.

I am directed by the Lords Commissioners of Her Majesty's Treasury to transmit to you the enclosed copy of a letter from the Postmaster-General relating to the steps to be taken for legalising the new weight of one-third of an ounce, to be introduced under the terms of a new Postal Convention recently concluded between Her Majesty and the Emperor of the French; and I am to request that in laying the same before the Lords of the Committee of Privy Council for Trade, you will state to their Lordships that, adverting to the observations contained in the Marquis of Hartington's letter, my Lords concur in opinion with his Lordship that, without having any reference to the question as to whether the Metric system of weights should hereafter be introduced into the Post Office or not, it is advisable that steps should be now taken for constructing a secondary standard weight of one-third of an ounce, in accordance with the suggestion made in the letter from the Post Office to the Board of Trade of the 4th November last; and my Lords therefore request that their Lordships of the Board of Trade will take whatever steps may be necessary for this purpose.

I am, &c.

T. H. Farrer, Esq., Board of Trade. James Stansfeld.

Enclosure.

The Postmaster to the Lords of the Treasury.

General Post Office,

My Lords, December 27, 1869.

With reference to your Lordships' letter of the 29th of June last, in which you authorised me to make a proposal to the French Post Office to reduce the single rate of postage on international letters between this country and France simultaneously with the altered system of weight from ¼ ounce to ⅓ ounce previously agreed to, I have the honour to state that, my proposal having been accepted, an additional Convention has been concluded between Her Majesty and the Emperor of the French, which now only awaits the ratification of the French Legislature, in order that a date may be fixed for bringing the measure into operation.

In the meantime I have been in communication with the Board of Trade with reference to the steps to be taken for legalising the new weights to be introduced under the terms of the Convention, and I beg to transmit herewith a copy of the correspondence for your Lordships' consideration. By Sir Louis Mallet's letter of the 7th inst. you will see that the Standards Commission, who have been consulted in the matter, are of opinion that the present occasion should be taken to adopt a 10 gramme standard of weight for the purposes of the Convention, instead of one of a third of an ounce, and that the Board of Trade entirely concur.

I am unable to acquiesce in this view. Half an ounce is the unit of weight in the United Kingdom, not only for the whole of the inland and colonial correspondence of the country, but for the greater part of the correspondence exchanged with foreign countries. The only countries excepted are France, Austria, Italy, Spain, and Portugal, the correspondence to and from which is chargeable by a scale having a quarter of an ounce for the unit of weight.

For many years this Department, at the instance of the mercantile community engaged in business with the Continent, has urged the French Post Office to adopt, in respect to its correspondence with the United Kingdom, the higher scale of half an ounce; and of so much importance has this object been considered that for many years the Department has refused to accept the limited concession offered by the French Post Office of an extension of the scale from ¼ to ⅓ ounce. It is true that not seeing any immediate prospect of success in obtaining the desired concession, I have not thought it right any longer to deprive the public of the considerable, though still, in my opinion, inadequate amount of convenience offered by the French Post Office. But I regard the measure as a temporary arrangement, and still confidently hope that before long the object so long desired will be attained, and that all the letters forwarded to and from France or in the French mails will be chargeable by the half ounce scale.

A correspondence is at the present moment going on between this Department and the Post Offices of Austria and Italy, which it is fully believed will have the same result, and the only letters for which a less weight will be allowed will then be those for Spain and Portugal, countries

Appendix IX.—*continued.*

with which the correspondence exchanged is not considerable.

To introduce into the United Kingdom at the present time a 10 grammes scale would certainly tend to defeat rather than to assist the views of this Department, by giving a more permanent aspect to the arrangement; and on that account the suggestion of the Standards Commission is open to most serious objection.

The adoption of that suggestion would further occasion not only inconvenience but great expense to this Department.

Under the arrangement contemplated by the Convention, it will be sufficient to furnish each postmaster and letter receiver with weights of a third and two-thirds of an ounce respectively.

For letters weighing more than two-thirds of an ounce the weights already used, together with the two new weights, would be applicable.

Under the 10 grammes scale suggested by the Commission it would be necessary to supply every postmaster and letter receiver certainly with weights of ten, twenty, and thirty grammes, and all but the very smaller offices with multiples of thirty grammes, and this only for the purpose of weighing one small class of the correspondence at such offices. The public, too, would be compelled to procure similar weights for weighing their correspondence forwarded by the route of France.

Under these circumstances, and without expressing any opinion as to the advisability of introducing the metric system of weights into the Post Office as a general measure, I am strongly of opinion that steps should be taken for constructing a secondary standard weight of one-third of an ounce, in accordance with the suggestion made in the letter from this Office to the Board of Trade of the 4th ult., and I submit the question for your Lordships' decision.

I have, &c.,

The Lords Commissioners of the Treasury, &c. &c. &c. HARTINGTON.

These two letters were referred by the Board of Trade to the Warden of the Standards for remarks.

Remarks by the Warden of the Standards.

THERE is little to be added to my former remarks upon this subject. I may be allowed to observe that the request of the Board of Trade to be informed of the exact terms of the Postal Convention with France has not been complied with by the Post Office Department, probably because the Convention has not yet been ratified by the French Legislature. It is, however, understood that the allowance of weight for a single postage letter *in France* is to be 10 grammes, and not $\frac{1}{3}$ oz., which is inserted in the Convention merely as an alternative weight in this country, metric weights not having yet been legalised here.

I may also call attention to the following resolution of the Select Committee of the House of Commons in 1862, on weights and measures, contained in their Report recommending the introduction of the metric system:—

No. 411, of 1862. p. ix. Qu. 394–482.

"5. The *gramme* should be used as a weight for foreign "letters and books at the Post Office:"

As also more particularly to the important evidence of Sir Rowland Hill, then Secretary to the Post Office, bearing upon the subject, and describing the existing difficulties and complexities which would be removed by the adoption of an international system of metric gramme weights for postal services.

There can indeed be little doubt that as matters now stand, and with the near prospect of the establishment of the metric system as an international system of weights and measures, by means of the proposed International Conference at Paris, the adoption of gramme weights in the Post Office, at least for foreign postal services, cannot be long delayed.

As the question has already been submitted by the Board of Trade to the Standards Commission, and the action of the Commission appears to be called for by the terms of Her Majesty's Royal Warrant of appointment, as already stated, it has appeared to me that it would be more satisfactory to the Board of Trade that, before returning the papers to be dealt with by their Lordships, I should submit the communications from the Postmaster-General and the Treasury to the Astronomer Royal, the Chairman of the Commission, and consult with him as to the best course to be taken under the existing circumstances.

The Astronomer Royal concurs with me in opinion that it is expedient the question be now dealt with as shown in resolutions to the following effect, which he is prepared to submit to the Standards Commission at their next meeting; such resolutions, if approved by the Commission, to be embodied in their next Report to Her Majesty, and the papers relating to them to be appended:—

Proposed Resolutions.

The Standards Commission have fully considered all the circumstances relating to the question of legalising a standard weight of $\frac{1}{3}$ oz., as contained in the Papers delivered by the Warden of the Standards.

Looking upon the question as connected with the standards of weight generally, the relation of the several parts of the avoirdupois scale to each other, and the near prospect of establishing the metric system as an international system of weights and measures, they continue entirely to concur with the views expressed by the Astronomer Royal and the Warden of the Standards in the remarks transmitted to the Board of Trade on 10th November last.

The Postmaster-General has however expressed his inability to acquiesce in these views, and has urged that the adoption at the present time of the 10 gramme weight, as a unit for foreign postal rates, is open to most serious objections in regard to the administration of the department with which he is charged. And Lord Hartington is supported in this opinion by the high authority of the Treasury.

At the same time the legalisation of a standard weight of $\frac{1}{3}$ oz. for foreign postal services, is advocated both by the Post Office and the Treasury as a *temporary arrangement* only, and without any reference to the larger and more important question of the use of the metric system of weights by the Post Office.

The Standards Commission cannot admit the conclusiveness of the reasons urged by the Postmaster-General in favour of legalising a $\frac{1}{3}$ oz. standard weight, nor against the adoption of a 10 gramme weight. They observe also that these reasons are based upon the proposed ultimate adoption of a $\frac{1}{2}$ oz. weight, as the unit of international postage between Great Britain and France. But as the determination of the question now appears to rest only upon Post Office departmental grounds, involving also the interests of the public to a considerable extent, of which the Post Office authorities and the Treasury may be allowed to be more competent judges and have taken upon themselves the responsibility, the Standards Commission are of opinion that it is not within their province to interfere with what more immediately concerns the internal administration of the Post Office Department, and their arrangements for Conventions with foreign Governments, and that it will be for the public advantage that the request of the Postmaster-General and the Treasury be at once complied with and the necessary steps taken for the construction, verification, and legalisation of a $\frac{1}{3}$ oz. standard weight as a temporary arrangement.

They therefore recommend,

1. That a standard weight of $\frac{1}{3}$ oz. for foreign postal services be immediately constructed and verified, under the directions of the Warden of the Standards, with a view to its being constituted a legal secondary standard, under the provisions of s. 6 of the Standards Act, 1866.
2. That such is to be understood as a temporary arrangement only, until the whole question of the introduction of the metric system of weights and measures into this country, and the more limited question of the adoption of metric weights for Post Office services, be determined by Parliament.
3. That in any legislative measure to be submitted by Her Majesty's Government to Parliament for amending the laws relating to weights and measures, provision be contained that the 10 gramme weight be substituted for $\frac{1}{3}$ oz., as a unit for foreign postal services, at the earliest period at which the necessary arrangements can be made for that purpose by the Post Office authorities.
4. And that no denomination of weight or measure, other than such for which a legal standard shall have been constituted, shall be used by any officer of a public department for weighing or measuring in the execution of his duties in relation to internal transactions of this kingdom.

In the meantime the Astronomer Royal has concurred in my suggestion that, in order to prevent further delay, I should at once direct three weights of $\frac{1}{3}$ oz. each to be constructed, so that they may more readily be verified by comparison with the standard 1 oz. weight. One of these, when accurately verified to the satisfaction of the Commission, may be selected as fit to be adopted as the standard weight of $\frac{1}{3}$ oz. for foreign postal purposes, and recommended to be legalised under the Act 29 & 30 Vict. c. 82, and added to the number of secondary legal standards of the Board of Trade. Upon a resolution of the Commission to this effect being communicated to the Board of Trade, their Lordships

Appendix IX.—*continued.*

may take the necessary steps for obtaining an Order in Council, declaring the same to be a legal secondary standard of weight for foreign postal purposes, under the provision of s. 6 of the above-mentioned Standards Act, 1866.

Standards Department, Feb. 12, 1870. H. W. CHISHOLM, Warden.

The Secretary, Post Office, to the Secretary Board of Trade.

General Post Office, February 25, 1870.

SIR,

WITH reference to my letter of the 4th November last, suggesting that a secondary standard weight of $\frac{1}{3}$ oz. should be constructed for the purpose of enabling this Department to carry into effect the provisions of a Postal Convention recently concluded between Her Majesty and the Emperor of the French, I am now directed by the Postmaster-General to request that you will state to the Lords of the Committee of Privy Council for Trade, that a standard weight of $\frac{2}{3}$ oz. will be also required, as without such weight there would be a great loss of time in weighing letters.

The Postmaster-General has accordingly to request that steps may be taken for legalising weights both of $\frac{1}{3}$ oz. and $\frac{2}{3}$ oz.

I am, &c.

J. H. Farrer, Esq., Board of Trade. JOHN TILLEY.

Remarks by the Warden of the Standards.

A copy of this letter will be laid before the Standards Commission in order that the same course may be adopted with respect to a weight of $\frac{2}{3}$ oz. as of $\frac{1}{3}$ oz. In the meantime the necessary directions have been given for the construction of standard weights of both denominations.

Standards Department, 28th Feb. 1870. H. W. CHISHOLM, Warden.

(For further notice of this subject, see § xli. of the Fourth Report of the Standards Commission, and minutes of proceedings of the Standards Commission, to be appended to their Fifth Report.)

APPENDIX X.

PAPER delivered by the WARDEN of the STANDARDS.—On the STANDARD WEIGHTS and MEASURES of the UNITED STATES of NORTH AMERICA.

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PART I.

Information furnished by the Standards Department at Washington.

Much information relating to the standard weights and measures of the United States of North America, and the laws and regulations applicable to weights and measures, being contained in the books and documents which have been transmitted from the Standards Department at Washington, and are now deposited in this Department, it may be desirable to lay before the Commission a summary of the information thus afforded.

American weights and measures originally derived from the English standards.

The weights and measures used in all the States of the Union were originally derived from the English standards, the colonists from England having brought with them the weights and measures of their country. Previously, however, to the well-known and elaborate report made by John Quincey Adams in 1822, the actual standards in use by the several States and in the Custom-houses, although thus derived from the English standards and so defined by law, were ascertained and reported by Mr. Adams to be very defective and wanting in agreement with the recognised standard, as well as in uniformity.

Construction of new and uniform standards for the United States, in 1836.

The construction of new and carefully constructed standards under the direction of the Government, and by authority of a resolution of Congress of 10th March 1835, and their distribution to the custom-houses in 1836, furnished the means of uniformity in the collection of the customs; and the resolution of Congress of the 14th June 1836, directing the construction and distribution of complete sets of standards to each of the States, established uniform standards of weights and measures throughout the United States.

Their distribution and adoption in the separate States.

Since the distribution of these standards most of the States have adopted them by new enactments, as the standards of the respective States, and have actually distributed or provided for the distribution of copies of these standards to the counties, and in many instances to towns also.

Complete set presented to the British Government in 1843.

In 1843, pursuant to a resolution of both Houses of Congress, a complete set of the standard weights and measures of the United States, together with two balances, were presented to the British Government. These remained in the custody of the Astronomer Royal until they were transferred to the Standards Department, on 2nd August 1867, under the authority of the Treasury letter of 26th July 1867.

Series of documents relating to these standards, also transmitted.

The important and elaborate work of the construction of these standards, as well as of all the new standards for the custom-houses and the several States, and of the balances and other apparatus required in connexion with the standards, was entrusted to and executed under the superintendence of Mr. Hassler, who was also superintendent of the Coast Survey. In transmitting the American standards to the British Government, Mr. Hassler also enclosed a special report relating to them, and a whole series of the documents respecting the construction of the new standards and to the old standard weights and

Appendix X.—*continued.*

measures previously in use. These documents include the resolutions of Congress and the several steps taken by the American Government in relation to the standards. I have since been furnished by the Standards Department at Washington, through the kind offices of the Secretary to the American Legation, with a continuation of these documents up to the present time, and have thus been enabled to prepare this paper for the Standards Commission from the most authentic sources of information.

Including special reports by Mr. Hassler.

Mr. Hassler's special reports, transmitted with the American standards, are as follows:—

Discussion upon the Standards of Weight and Measure, and their construction in general, as executed for the United States of America, and upon those of the Standards sent to the British Government by the Government of the United States.

Report on standards of the United States.

1. The establishment of a system of standards of weights and measures in a country has a two-fold aim, and therefore also needs two main considerations.

The first is the just regulation of the means by which all dealings in the country are regulated, which relate to material objects, and the second, the establishment of a steady rule in the commercial connections of different countries with each other, and these connections have no doubt in all countries exercised some influences upon them.

2. The circumstance that most of the standards were originally agreed upon by a more or less mere accidental decision and connection, has of course, in time of greater activity, where also more accuracy and reasoning were demanded, shown difficulties, which various attempts have been made at different times to overcome, and by which the standards were gradually improved. It has not been possible as yet to come farther than to fix with an accuracy always proportioned to the state of science in this branch, constant relations between the standards existing; all attempts to find in nature an unchangeable material unit of any kind, whether in weight, or in length, or capacity, have hitherto been fruitless, and even the probability of finding any such object in nature appears to vanish always more by the progress of science.

3. It is evident from historical facts that standards were transferred from one country to another by the mercantile connections of these countries. Thus the troy pound, originating, as its name indicates, from Troyes in Champagne, at a time when that place was a great emporium of commerce, spread over France, and outlived the competition with the mark, selected for many of the European mints; it stepped with the commercial connection into Brabant, Holland, England, and America; it appears in every step with some loss, until lately arrested in England, the lightest of all, by bringing the mint weight again up to the new, now called Imperial weight.

4. So the English mint system dates from Saxony, the eastern invaders of the country introducing their coins, which from that circumstance were called *sterlings*, from which the denomination of sterling (value) has remained to our days, to the British *mint system*. The ell stepped over into England with the Brabant manufactories, as yet in modern recollection. Most likely the migration of the different kinds of bushels and gallons, in England, might be traced back to their origin by following the commercial connections of the different parts of the country, farther than was done by the comparisons of standards in England about twenty years ago, which have furnished inductions towards it.

5. A variation of the mode of establishing uniformity and justice in the dealings in material objects is found sometimes in old establishments for the common necessities of life, by taxing their objects at one and the same price for an *equal nominal unit*, and changing the value of *that unit* in proportion inversely to the cost at which they come to stand in different parts of the country; as, for instance, in a country not wine growing, to diminish the unit of capacity measure of wine so as to compensate the cost of transportation to the different distances from the place of importation.

6. What may have been the principle upon which feet were divided into 11 inches, instead of as more generally 12, in some mountain countries of Switzerland, and in Amsterdam, might be perhaps interesting, but difficult to find.

7. As soon as the nicer connections of the society claimed minuter accuracy, the science of natural philosophy in its mathematical applications had to be called in to assistance for the introduction of a connected *system*, grounded upon steady principles, which might afford the desirable accuracy and furnish means to secure for future preservation of the same, as well as of the standards themselves.

8. The principal difference, however, between England and the continent of Europe which existed until the last establishment of the yard as unit, was, that any length desired for a given purpose was determined by a mean of the distance given by the subdivisions of a scale of equal parts by the best accredited artists, without regard to the old, indeed too rough, bed of the yard and ell which were deposited in the Exchequer; from thence of course considerable variety must unavoidably have arisen, proportionally to the want of skill and means for accuracy in straight line dividing, the means to which are rather a more modern improvement. Thence came that they acknowledged in England lately the Troughton scales, as the only (it may be said) legitimate family of standards. The accounts of the surveys made in England, in India, and in other places, by Englishmen of science, bearing witness to this influence, have still more awakened the attention upon this subject.

9. In the last settlement of the Imperial standards, a yard was accepted as only unit, and was taken from Mr. Troughton's scale, of which the most carefully made copy is the scale of 82 inches, made by him personally for the Government of this country, for the Coast Survey, under my eyes after a new correction; the particular details have already been extracted from my report of 1832, by the Committee established in England for the restoration of the standards lost in the conflagration of the Parliament House.*

10. The epoch of scientific improvement dates first from the return of the French Academicians from the measurement of the three degrees of a meridian near the Equator, on which occasion the double length of the pendulum under the Equator was proposed in France as an unit of length measure taken from nature; this is traced upon the back of the Toise of Canivet, which I brought to this country in 1805, having purchased it in 1793 from the heirs of Dionys de Sejour, member of the Committee charged with the plan.

11. But the greatest action in this branch of social arrangements was the scientific operations of the measurement made by France of 12 degrees of the meridian, being equally on both sides of 45° latitude, and the systematic grounding upon that of a full system of standards of weight and measure, determined upon scientific principles, and with an accuracy previously not attained, taking the ten millionth part of the earth's meridian for the fundamental element of the whole system.

12. The operation that was to be performed in this country could not take any such bold step; it was to be grounded upon only nominal *legal statements*, which were to be made stable, and to which precision could be given only by conditioning them under certain distinct determinations taken from nature, internal qualities and external influences, this was the aim of my arrangements; to which was of course yet to be connected the combination of the best methods to attain the greatest accuracy in each individual kind of work; and it must be observed that if not the greatest accuracy is aimed at, that degree of it which is indispensable will not even be attained. This task to execute for a country of the extent of the United States, was in itself already of great interest in the prospect of the extent of its consequences, and in the state of the country the only resource to arrive at an actual practical result.

13. In the habits of the old English system, the material of the different standards was indiscriminately either brass or (so called) common metal, that is, either an alloy of copper and zinc, or of copper and tin, the first for standards of length, the second for those of weights; though the difference of expansion between the two is probably not very great, still it is of course more proper to use but one kind of metal. For the standards of the United States, I found proper to give the preference to good brass of our own composition, because nicer weights and measures in common use are most generally made of that metal; thereby the difference between habitual measures and the standards was so much diminished in common use.

14. It must however be distinctly observed that only a binary alloy is admissible to obtain the compactness, solidity, and necessary uniformity of the metal, and a proper knowledge of the expansion thence follows; that also the metals employed in the alloy must be pure in their kind. It was to obtain this condition of purity, that I had the zinc used for the standards of the United States, of which those to be sent to the British Government form a part, reduced

* See Appendix to Report of Standards Commission, 1841.

Appendix X.—*continued.*

from zinc ores found in this country, under my own eyes, by a new process of the invention of Mr. Flitz, a very able metallurgist from Switzerland, established in this country; the proportions used were three parts of copper to one part of pure zinc, and the solidity of the resulting castings has been proved by sawing in two weights of different sizes to ascertain this quality. When lead is put in the composition of the brass, as often done, the metal gets so bad that in attempting to solder it, the brass melts before the solder, and makes a hole in the piece, which spoils the work.

15. It is evident from the preceding that the specific gravity of the metal employed must be determined by actual experiments in the two states, as simple castings, and in the hammered state; also the expansion by temperature is to be determined by actual experiments in both states, if possible. These two data form a very valuable scientific item in the presentation of a full system, but it must be observed that hammered metal never returns fully to the same state, when it has been exposed to a change of temperature above a certain degree.

16. For the accurate determination of the capacity measures, the necessity, indispensable for accuracy, to determine them by the weight of distilled water, at the temperature of its maximum density, introduces new special requisites; it prescribes a limitation in the operations to near that temperature, because at that point its variation is the smallest. At greater distance from this point of maximum density of the water, the too rapidly increasing influence of the change of temperature, subjects to a liability to errors entirely inadmissible.

17. The necessity to have the water always fresh distilled obliges to have an appropriate distillery in constant activity, while adjusting. In our operations in this respect, the water was never used over 24 hours old from distillation; longer it does not remain free of air.

18. When Sir George Shuckburgh Evelyn made his experiments for the determination of the actual weight of water, from which all determination of capacity measures must go off, there was not yet any knowledge of the point of maximum density of the water; thence his determination of 252·422 parliamentary grains weight of the cubic inch of water, which he accepted (or as Captain Kater quotes it, 252·458 grains) as a mean of his results at the temperature of 66° Fahr. and 29·74 inches barometer, lies yet under some doubt. I have not yet been in the case of disposing of the means to make proper experiments upon this subject, as it would be interesting to do, for it is evident that between that temperature and the temperature of the maximum density, there must be a considerable difference in the accuracy with which that element can be determined.

19. Captain Kater giving to the weight of the cubic inch of water at the temperature of 62° Fahr., the value 252·7 grains, that is for 4° change of temperature an augmentation of about 0·3 grains; the table which he used gives a difference of nearly 20 grains for the gallon between these two temperatures, which would give a different result to clear up these disparities. The experiments of Sir George Shuckburgh should be made anew, with the higher improved means which we possess now, and on a larger and more varied scale, as it is so easily possible in England. They are besides of the highest interest for various determinations of importance in natural philosophy; the results, whatever they may be, will therefore well pay for the trouble and expense.

20. It is well known that these elements and also others entering into consideration in this subject, are differently determined by the scientific men of France and the Continent of Europe. I have shown deductions referring to this in my report of 1832 upon Standard Comparisons, but as I was working upon standards of English origin, I gave the preference to English data, not to introduce, by accepting any others, a fractional difference in the result, which might have been inconvenient in comparisons.

21. I may remark, that but few years ago Mr. Dalton stated in an English periodical the maximum density of the water at about 42° Fahr., which is the point of temperature (nearly) at which a *glass vessel* contains the *greatest quantity* of water, where, of course, the state of expansion of the glass is implicated in the result. This is very well proved by experiments upon my water balances, reported upon in 1832. Three bulbs of different size gave the coinciding results of 41°·6; 41°·6; 41°·55; 41°·7, a coincidence more than satisfactory. The cause of this expansion in my report of 1832 shows these variations strikingly; the copper bulb giving 44°·6 for the maximum content, owing to the greater expansion of the metal over the glass. I had not yet the opportunity to try the brass, which I intended, and which would apply directly to the experiment of Sir George.

22. The actual maximum determined, *independently of the vessel*, is 39°·6, as determined by the motion of the water within itself, from the *change of its specific gravity* by the *change* of temperature alone, thus; placing a deep glass jar with cold water in a warm room, with a thermometer below, and one above, the gradual increase of the temperature of the water will cause the motion of its particles, with the change of their gravity occasioned by the change of temperature, and the upper and lower thermometer will meet the same temperature only at the point of maximum density. This experiment will be repeated in the inverse order, by placing a jar of warm water into a low atmospheric temperature.

23. Notwithstanding that in any operation of adjustment of standards it is proper to ascertain and calculate exactly all physical influences concerned in the operation, it is for the accuracy of the result in practice by far the best to apply the means of compensation of these influences.

24. With these views I have for the yards selected a breadth nearly and a thickness of the metal *exactly, equal* to that of the Troughton scale, with which they were to be compared; this had besides the advantage to bring both in the same focus of the microscopes, and by the equal thickness the movement of the temperature (if I can call it so) became equal, and thence the comparisons more accurate; for it will be easily observed in practice that scales of unequal thickness do not keep together in temperature, particularly when, as always, the observer is nearer to the one than to the other scale. To avoid the influence of the heat of the body of the observer, it is necessary to take a paper screen between him and the scales. It is also indispensable that the scales be supported in their full length upon a solid plank stand, exactly planed and smooth, with an over sufficient breadth; no substitute for that, by any proportional support or the like, will ever do.

25. For all the weighings, the counterpoises were of the same metal as the main weights, being taken from such as had become accidentally too small, and the weighing was always made by what is called substitution, namely, placing the original weight, and the one to be adjusted, alternately in the same basin, and always well centrally in it. By this method, the reduction to the vacuum is of course not necessary for the practical purpose, still, should it be desired, the observations for that purpose are not excluded.

26. I would in all cases of comparisons and weighings, wherever it may be applicable by the means on hand, recommend the combination method, as I have used it in the comparisons of the metres, and in the adjustment of the smaller weights; some dexterity and closer attention, which are required, may soon be acquired; it is evidently the best mode of varying the observations. Both these applications I have described in proper places in my reports.

27. Upon the *selection of units* of standards some remarks are to be made in regard to the magnitude. The two small *units*, as well as the two large ones, are equally to be avoided. For instance, the foot as the length measure, and the ounce as unit of weight, are too small, they require too much multiplication in their application, thence all possible errors are also too often repeated; while rods, perches, or in fact any measure above eight feet, are too long to be kept in equal temperature and equal support in the whole extent, which is an absolute requisite of accuracy. Any weight above two pounds, or suppose a kilogramme, is too fatiguing for an appropriate balance, giving the desired accuracy, or requires a balance too large to be properly sensible. In the capacity measures, the same reasoning applies; besides the greater ease of manipulation, and consequently the habitual mode of measurement of grain and similar articles, dictated to make half-bushels for the standards, and not whole bushels. For the liquid capacity measures, the form and weight are to be considered as the weighing determines them.

28. Variations of temperature exercising the greatest influence in the determination of length and capacity of measures, it would appear desirable to have for both one uniform state of temperature, that could be considered as fixed by nature, and which would be general for all kinds of standards; such a degree of temperature is given by the maximum density of the water (see note*). The advantage

* *Note by Mr. Hassler.*—I may be allowed to state here a fact. The "Commission des Poids et Mesures" in France, had first proposed the temperature of melting ice for that of the determination of the unit of weight and capacity. In 1796, I was in Paris, when my professor of mathematics, Mr. J. G. Tralles, in Berne, wrote to me to propose to substitute for it the temperature of the maximum density of the water, which I did, to Chevalier de Borda, the most active member of the Commission of my acquaintance, upon whose proposition it was then adopted.

Appendix X.—*continued.*

of selecting for the capacity measures the temperature of the maximum density (that is 39°·6 Fahr.) of the water, has been deduced above, and it does not appear that there can be any difficulty to accept it for the standards of length and others, to introduce more unity.

29. In the mechanical construction of the standards, there are peculiar principles to be followed for each kind in order to secure success; particularly in the casting, which is always the most difficult, and in which the operations of this office have been peculiarly successful, as the products show, very few castings even having failed since the foundry was organised. This is peculiarly due to the purity of the metals used in the combination of the brass, to be certain of having a pure binary compound of proper proportions; to ascertain this last part, different proportions were tried, the best was selected and used.

30. The smaller weights must be cast full with the knob on, and otherwise cylindrical, having a rim projecting downwards below, upon which the weight stands, and which serves for the final adjustment of the weight, by filing and rubbing it down, by grinding, either upon a sandstone, or ultimately upon a dry Missouri stone, even, at last, only with a leather. I preferred for the cylindric part the proportions of equal diameter and altitude approximately; the greatest difficulty is in the fulness of the neck of the knob, but it can be overcome by a sufficient fulness of the metal in the smaller weights, suppose up to 4 or 5 lbs. But in the larger ones, it is necessary to cast full cylinders, and then knobs separate, with a screw, that will fill up as exactly as possible the hole made for it by boring in the middle of the cylinder, which the screw fills up entirely again.

31. In no case it is allowable to leave a hollow part in a weight, to place pieces of any other metal into it to obtain the equilibrium, as the galvanic effect of the different metals changes the weights very materially. This has been strikingly proved in the collection of the standards of the State Department, in the set of mark weights made in the mint of Copenhagen, which presented the greatest variation and disparity by being adjusted by leaden shot put in a circular cavity, practised in them, and shut up very tightly by a strong screw.

32. The yards were hammered, as in that case more hardness in the metals is required; the casting of them is more difficult than another shape, on account of the quick cooling of the thinner mass coming immediately so much in contact with the form, and tending to chill the metal. The form given to them is adapted to both methods of comparison, by the microscope, and by contact or feeling lever; in the first case, the fine line formed by the contact of the carefully worked cutting pieces serves under the microscope as a line drawn upon a brass bar, and when the yard and its matrix are taken separate they apply both equally to a proper feeling lever contact.

33. The liquid capacity measures were formed by cast cylinders, hammered, and the bottoms soldered to them. Their proportion being two diameters for the height, appeared the best adapted to accuracy, and to the proper working with them. The handles were added afterwards, and can be removed by the loosening of a few screws; it is not proper that they should be on, in accurate comparisons by weight.

34. The half-bushels were cast in the manner of bells, bottom upwards, and have a rim or rings all round the outside at about one-third of the height below the top. Their proportion between diameter and depth is, the depth half the diameter, which gives a very good proportion, and in case of heaped measure a regular proportion, it is also more appropriate to measuring of grains and similarly dry objects.

35. In the weighing of the capacity measures with water, they are always covered with a plate glass, the one side of which is unpolished, and this side is to be placed to the water, that is the lower upon the measure, the water adapts to that part without getting any air attached to the plate, because the grinding of the glass occasions for the water a capillarity along its surface, which lets the air escape and attracts the water.

Special Account of the Standards of Weight and Measure sent to the Government of Great Britain.

Account of standards presented to the British Government.

These standards are in all respects similar to those made in the office for constructing standards of weight and measure for the different States of the United States, and consist in the following, viz.:—

1. Two boxes of solid brass weights, being No. 1 $\frac{4}{7}$ of the sets made, and containing in the first box,—

One 1 lb. troy weight.
„ 1 „ avoirdupois weight.
„ 2 „ „
„ 3 „ „
„ 4 „ „
„ 5 „ „
„ 10 „ „
„ 20 „ „

In the second box,—

One 25 lbs. avoirdupois weight.
„ 50 „ „

In my Report* to the Treasury Department, of 28th July 1836, they are nearer described.

The single lb. weights were ultimately compared by combinatory weighing, which I have described in my Report* of 18th November 1837, made upon the adjustment of the ounce weights for the mint, and so were other weights until 5 lbs., but the higher weights were determined singly.

There were several hundred such weights made, which were gradually approached to final adjustment, carried on until no steady ascertainable difference could be found; there was not any detailed individual register kept of their ultimate standing. There was also no need of keeping account of the barometer or the temperature, as the counterpoises were always of the very same solid brass as the weights compared, and the principal standards, and even the balance.

2. One box containing weights of ounces troy, the highest being 10 ounces, and thence down to 6, 5, 4, 3, 2, 1, and decimal subdivisions to the ten thousandth of the ounce.† These were all adjusted as mentioned in my report upon the principles of combined weighing. The number of the weights and their distribution made it again here unnecessary to keep special account of the ultimate results which they presented by calculation; it appeared, like in the case of the large weights, sufficient to bring them to interminable differences.

The set sent is No. 33 of that part of the work.

For all the weights it is proper to state that they bear no marks, except a small eagle, very shallow and without sharp edges, stamped so as not to admit any dust or soiling. Any engraving (though often done) is evidently improper, because it admits from the hand or otherwise dust, rust, or similar, which cannot be cleaned without altering the weight; for it must be observed that the commonly considered harmless cleaning of the weight with an oiled leather takes considerable weight away; we have often used that means to approach a weight to the fullest nicety.

3. The yards, the form and construction of which is well known by my reports upon the delivery of some, required, of course, longer and more tedious operations for their final adjustment by gradual approaching. The yard and its matrix were both to be adjusted and compared while adjusting. This operation was done, first, by a feeling lever expressly constructed, and after, under the microscopes of the 82-inch scale, with cutting pieces of the same size and metal, so closely worked as to form by their contact mere small lines, which were observed as has been described in my reports, and already in my papers upon the Coast Survey. In that case engraving did not hurt, therefore they are all equally furnished with an engraved eagle and numbers by which they are registered. The number of the yard selected for this sending is No. 7, and its standing in the last comparison gave —0·000093 inch upon the 82-inch scale of Troughton, all being at equal temperature. The yards are made of exactly equal thickness with that scale, and the yard and matrix joined together are very nearly of the same breadth as that scale, so that the motion of the temperature keeps equal path in both, and the observations were always made only when both were of equal temperature, as I consider the equalizing of this condition much more accurate than the accounting for the difference that may be between the two.

4. Of the liquid capacity measures, the set selected from among those remaining undistributed among the States is that distinguished by No. 2. The state of ultimate adjustment resulting from the last weighing of each individual of these measures has been registered in my report of 5th April 1842, so that at any time they can be comparable together. As will be seen there, the result for this No. 2 stands thus:—

* Copies of all Mr. Hassler's reports were transmitted by him, and are now in the Standards Department.

† See list of decimal troy ounce weights, p. 327. The smaller weights are all of brass. No smaller avoirdupois weight than 1 lb. was sent.

Appendix X.—*continued.*

Last final Results when reduced to the maximum Density of Water.

—	Fahr. Degrees Temp.	Grains =	Grains at maximum Density of Water.
The gallon - - -	45·7	−2·5	+0·0214
„ half gallon - -	47·4	−2·63	+0·0723
„ quart - - -	56·8	+1·93	−0·1097
„ pint - - -	52·4	−0·12	−0·0319
„ half pint - -	49·5	−0·30	−0·0452

N.B.—It is evident that the smaller decimals of the ultimate results are given by the reductions. The signs are used so that when applied to the measure their algebraic sum presents the accurate standard. The reduction for the barometer to 30 inches is included in the weighing itself.

5. The half-bushel has been selected separate, after the thirty that were numbered were adjusted; the relation of it towards them will appear in the report, which is just now made upon the adjustment of the half-bushel in general.

Remarks of the Superintendent, F. R. Hassler, Esq., on the construction and adjustment of the Standard Half-Bushel Measures.

The weight of the half-bushel of distilled water, at the temperature of the maximum density contained in a brass half-bushel in its state of expansion at that temperature, has been determined by my reports of 1832 to be 38·8137 lbs. avoirdupois, or 271,695·9 grains troy.

In the same manner as in my report upon the liquid capacity measures, I have stated the individual numerical reductions adapted to the sizes of the half-bushels or dry capacity measures.

The stand of the barometer to which the standard determination refers is here again 30 inches, as in the liquid measures; the variation for another stand brings for the half-bushel = 9·54653 grains for every inch variation, additive above, substractive below the 30 inches, which furnishes the following small table for other smaller differences:

For 1·0 inch=9·54653 grains.
„ 0·5 „ =4·77326 „
„ 0·4 „ =3·819 „
„ 0·3 „ =2·864 „
„ 0·2 „ =1·909 „
„ 0·1 „ =0·955 „

which will suffice to calculate this reduction.

For the calculation of the effect of the temperature, and the consequent reduction of any weighing to what it would present at the stand of 30 inch barometer, and the temperature of the maximum density of the water, it is necessary, like in the liquid measures, to keep account of the expansion of the brass as well as of the water, the brass giving a regular equal progression, while that of the water goes in an accelerating progression.

Upon the combination of these two series a table was calculated for so much extent on both sides of the maximum as it is proper to extend the adjustment, higher temperatures being too liable to errors on account of the too great variation for one degree of the thermometer. The inspection of the table shows already within its limits, at the two extremes, the propriety of this precaution.

The barometer and thermometer used in these adjustments were the same as I described in the report upon the liquid capacity measures, and the balance used in the weighing is that constructed upon my plan and direction in the office of the Weight and Measure Establishment, and described in the same report.

Table for the reduction of the half-bushel to the temperature of the maximum density of water.

Degree Fahr.	Reduction in Grains.	Degree Fahr.	Reduction in Grains.
32·0	+91·7609	46·4	−26·3933
33·8	+62·403	48·2	−23·4985
35·6	+37·403	50·0	−17·0297
37·4	+16·669	51·8	− 6·9987
39·2	− 0·0984	53·6	+ 6·4814
41·0	−12·4006	55·4	+23·3357
42·8	−20·9215	57·2	+43·480
44·6	−25·5557	59·0	+66·838

The adjustments were all made by the weight of distilled water, renewed every day; the half-bushel of brass, with its plate glass cover upon, is first equilibrated by counterpoise of the same kind of brass as all weights and measures, even the balance purposely made, are constructed of in this office; then a weight, exactly of the proper weight of the distilled water, or 38·8137 lbs. avoirdupois of the same brass, is placed in the half-bushel, and the balance is again equilibrated. This weight being removed, the half-bushel is filled with distilled water, the temperature of which is ascertained both before it is put in the measure and when in it, when both are left to get to equal temperature. The filling of the measure is done from a vessel standing somewhat higher by means of a syphon, and if any air bladders attach yet to the sides, they are removed by passing a small brush over them; then the plate glass cover is placed upon the half-bushel by sliding upon the rim of the measure, when just properly filled with water, the *mat* ground side of the glass being turned to the water, as it adapts to it without air bladders; then the half-bushel is properly wiped dry, that no water may remain adherent outside.

The half-bushels are packed in their boxes, so that the glass cover is hid under the double bottom of the box; when the measure is to be used, it is of course taken out of the box, and the double bottom board can be taken out, when the standard is ready for use, exactly in the same manner as its adjustment has been described in the making of them.

If wooden measures are to be adjusted, it is necessary to select a round uniform seed, as either mustard seed or millet, which latter is the more uniform. A proper arrangement is of course to be made for that purpose, in a fixed manner, to occasion a regular slow run in filling the half bushel to be adjusted.

The ultimate weighing of the half-bushel was repeated several times, and resulted as follows:

Temp. Degrees Fahr.	Barometer.	Weighing.	Result at maximum Density.
	Inches.	Grains.	Grains.
49·2	29·84	−20·8	−0·557
47·7	29·68	−25·0	−0·431 } mean
47·5	29·90	−25·0	+0·070 } −0·377
47·7	30·14	−25·2	−0·591

The signs are here again, like in the liquid capacity measures, applied so that their algebraic sum shall represent the actual standard unit of weight of distilled water at the maximum density which the half-bushel shall hold.

It is proper to join to this sending, a whole series of the documents relating to the subject of constructing the standards, and to the previous comparison of the old weights and measures; they are contained for the greater part in the documents of the Coast Survey, of which therefore some are necessarily going with it.

F. R. Hassler.

Washington City, 3rd June 1843.

Results of comparisons of measures of capacity, 1832 and 1842.

Mr. Hassler also sent the following account of his weighing various standard measures of capacity in 1832 and 1842:—

Comparison of the Results of the Weighings of the Liquid Capacity Measures, as obtained in the two Weighings of 1832 and 1842 of the English smaller Measures and the French Litres, in grains of distilled water as its maximum density.

Denomination.	In 1832. A.	In 1842. C.	A—C, Diff. between two Weighings.
Litre of the State Department - - -	15401·33	15400·4826	+0·8476
Litre of the Coast Survey, No. 1 - -	15405·08	15402·7826	+1·957*
Litre of the Coast Survey, No. 2 - -		15403·4636	
English wine gallon -	58460·2	58458·5366	+1·6634
„ Winchester gall.	68571·0	68563·7366	+7·2634
„ quart - -	17684·21	17686·3581	−2·1481
„ pint - -	8811·21	8811·6163	−0·4063

* These litres were found in 1832 differing = 0·6 grain, and in 1842 again 0·68 grain.

The quadruple quart gives the gallon = 70745·4824
The eight-fold pint - - - = 70492·9304
Difference from the actual gallon { 2181·6954 / 1929·1938 } 252·502

This last difference between the small measure reduction is already equal to one cubic inch; these differences in general are entirely inexcusable in the English standards, furnished with Exchequer certificates. It will be observed, on the other hand, that the differences between the weighings of 1832 and 1842, with means in every respect different,

Appendix X.—*continued.*

may be considered minute, particularly when it is considered that the stamps upon the edges of the English vessels weighed, are a great impediment to accuracy. In 1832 the water balances were used; in 1842 the new equal-armed lever-balances.

F. R. Hassler.

Description of the Standard Units of the United States.

Report by Prof. A. D. Bache.

The following information, relating to the Standard Weights and Measures of the United States, is taken principally from a Report, dated 30th December 1856, by Professor A. D. Bache, the successor of Mr. Hassler (who died in November 1843), as Superintendent of Weights and Measures at Washington. This Report was laid before Congress, and ordered to be printed.

Standard of length.

The actual standard of length of the United States, the original of which the State standards are copies, is the length of a yard marked upon Troughton's 82-inch brass scale, referred to in Mr. Hassler's paper, s. 9, the yard measure of 36 inches being taken between the 27th and 63rd inches of the scale, at 62° Fahrenheit.

The coefficient of expansion of this brass scale, and of the several standard brass yards, is taken to be 0·000010509063 for 1° Fahr., or for expansion of 36 inches, 0·00037832508 inch, from Mr. Hassler's experiments made at Newark in 1817, recorded in the new series of the American Philosophical Society's Transactions, Vol. II. It is stated that no difference could be detected in various comparisons made, between the rate of expansion of the Troughton scale and of the several brass standard yards.

The result of numerous micrometrical comparisons of the United States yard with the bronze Imperial standard yard, No. 11, presented to the United States by the British Government in 1855, through the Astronomer Royal, shows the American standard to be 0·00087 inch in excess of the Imperial standard at 62° Fahr. These comparisons were made at Washington, between May and October 1856, and at various temperatures between 59°·5 and 61°·8 Fahr.

Standard of weight, the troy pound.

The standard of weight is the brass troy pound, copied from the Imperial troy pound by Captain Kater in 1827 for the United States Mint, and preserved in that establishment. This troy pound is the standard, at the temperature of 62° Fahr., and 30 inches of the barometer when at 62° Fahr. It was found by Kater to be heavier than the Imperial standard by 0·0012 grain.

Commercial standard avoirdupois pound, derived from the troy pound.

The avoirdupois pound is derived from this standard, being in the proportion of 7,000 to 5,760; that is to say, the avoirdupois is equivalent to 7,000 grains troy. The weight of the commercial standard avoirdupois pound was determined by the best means attainable at the time, in grain weights, by Troughton, at the Mint, and at the Standards Office in Washington, in presence of Mr. Hassler and of the Director of the Mint, Dr. Moore. The commercial standard avoirdupois pound is commonly designated as the *Star pound*, from its being marked with a star.

A series of 40 comparisons was made in November 1856, between the American star pound and the gilt gun-metal copy No. 5 of the Imperial standard pound, which had been presented to the United States. The extreme results were that the star pound was lighter from 0·000 gr. to 0·020 gr., the mean being 0·009 grain. As the standard No. 5 was certified by the Astronomer Royal to be 0·008 grain heavier than the Imperial standard (according to Professor Miller 0·00734 gr. heavy at 65°·55 Fahr., bar. =29·75 in.), the American star pound was thus determined to be only 0·001 grain in excess of the Imperial standard, an agreement which was declared to be quite surprising, considering that the two avoirdupois pounds were separately derived from the two standard troy pounds, in which nearly the same difference had been found to exist. There is no statement of any notice being taken of a difference of density in the two standard weights under comparison.

Standard units of capacity. Standard bushel, for dry measures.

The standard units of capacity are the bushel for dry measures, and the gallon for liquids.

The standard bushel is a brass measure containing 543,391·89 grains, or 77·6274 lbs. avoirdupois of distilled water, at the temperature of the maximum density of water, as *finally* determined by Mr. Hassler, viz., 39°·83 Fahr., and with the barometer at 30 inches at 62° Fahrenheit. The cubical contents of the bushel are 2,150·42 cubic inches. This was in fact the old Winchester bushel.*

But this bushel appears to be merely the theoretical standard, the half-bushel being practically adopted, containing 271,695·9 grains weight of distilled water, or 38·8137 lbs. avoirdupois, the cubical contents being 1,075·21 cubic inches.

Standard gallon, for liquid measure.

The standard gallon is a brass vessel containing 58,372·2 grains, or 8·3389 lbs. avoirdupois of distilled water, at the temperature of the maximum density of water, the vessel being weighed in air in which the barometer is 30 inches, at 62° Fahr. Its capacity is 231 cubic inches. This standard gallon is the same measure as Queen Anne's standard wine gallon of 1705.

Description of Standard Weights and Measures for Custom-houses, and instructions for their use, preservation, &c.

Standard weights for custom-houses.

Up to the close of 1856, 133 sets of standard weights and measures appear to have been delivered to the several custom-houses in 31 States of the Union.

The first sets of standard weights were delivered by the Treasury Department to Custom-houses in 1836, together with the following instructions:—

Instructions relating to the use of Standard Weights.

Instructions for their use. Standard weights.

1. Never touch the weight with the hand in any case whatever.

2. The weights are to be lifted out and in their places, on being moved, by means of the fork or hook covered with leather, which are added to the boxes for that purpose, fitting the different weights.

3. When the weights are taken out of the boxes, they must always be placed upon clean white paper, that they may not become scratched or soiled, as well when placed on the balance as otherwise.

4. The whole collection must be kept in a safe and dry place, free from all disturbances or danger of damage.

5. They must never be moved away from under the care of the officer under whose charge they are, to any other building or place to make comparisons, but any weights to be compared must be brought to the place of deposit of the standards to undergo the comparison.

6. To make a good comparison, the standard weight must be placed in one of the basins of the scales, and in the other must be put any heavy bodies to make exact counterpoise to the same; when thus an exact equilibrium is obtained, the standard weight is removed, and in its stead the weight to be compared is to be placed. Whatever may have *to be added to the weight compared*, by so much is it too light, whatever may be needed to *add* to the *counterpoise* will indicate the weight compared so much too heavy.

7. That the utmost caution is to be observed in the use of the weights will be self-evident. In all cases the weights must not be left exposed to the open air when not absolutely necessary.

8. As the standard weights have all their proper legal weights, it is proper to observe that in comparing rough

* The capacity of the old Winchester bushel and of other standard bushels is referred to in the Appendix to the First Report of the Commissioners of Weights and Measures in 1819, drawn up by Dr. Young. By its legal definition in the Act 13 and 14 Will. 3. c. 5., the Winchester bushel is declared to be a round measure, with a plain and even bottom, being made 18½ inches wide throughout, and 8 inches deep, according to the standard in the Exchequer. Its capacity, therefore, would be 2,150·42 cubic inches, and the eighth part, or the gallon of dry measure 268·8 cubic inches.

But in several later Acts of Parliament, the Winchester gallon is mentioned as containing 272¼ cubic inches, making 2,178 in a bushel.

The oldest standard bushel measure in the Standards Office is the bushel of Henry 7. There are two of these standards, one having a copper rim added to it, and thus holding about three pints of water more than the other bushel. There are also two standard bushels of Queen Elizabeth, and their contents have been found to agree with the bushel of Henry 7th's without a rim.

It is now hardly possible accurately to measure these bushels, either by linear measurement, or by measurement of their contents of water, or weighing such contents. They are not cylindrical, being about an inch wider at the top than the bottom, and the bottom is slightly rounded. The edges are also too irregular to admit of their being accurately filled with water; but their average width and depth agree pretty nearly with that stated in the Act of Will. 3, in 1701.

The standard bushel of Queen Elizabeth, and which was the legal standard from 1588 to 1824, was measured by weighing its contents of Thames water, by the Commission of 1819, and found to contain by estimation 538,059·375 grains of distilled water at 62° Fahr., and its capacity to be 2,128·9 cubic inches. The standard gallon somewhat exceeded the eighth part of this bushel, as it was found to contain 68,359·375 grains of distilled water, and its capacity to be 270·4 cubic inches.

The two standard bushels of Queen Elizabeth, and the bushel without a rim of Henry 7, were also measured by the House of Commons committee of 1758, by filling them with water measured from brass vessels the cubical contents of which were most accurately determined. The three bushels were found to agree in their capacity, which was stated by the Commissioners to be 2,124 cubic inches, and the capacity of the standard gallon to be 271 cubic inches. The Commissioners observed, that as by law the bushel should contain eight gallons, the standard bushel ought to be of the capacity of 2,168 cubic inches.

There is a second standard gallon of Queen Elizabeth of the same date, 1601, which was proved to be larger than the other, which was used as the corn standard, by two spoonfuls of water. The capacity of the second standard gallon was 282 cubic inches. This was the ancient ale gallon, which has continued to be used by excise officers for gauging all the ale and beer duties, whilst for wines, sweets, cider, and other liquors, except ale and beer, they used, from 1705, the gallon of 231 cubic inches, up to the change of the law in 1824.

In fact, the law of 1824, 5 Geo. 4. c. 74., for establishing uniformity of weights and measures, for the first time abrogated the ordinance of Magna Charta, in 1225, "that there shall be, through our realm, one measure of wine, and one measure of ale, and one measure of corn."

Appendix X.—*continued.*

weights for common mercantile use, there ought always to be a certain allowance made for the wear of such weights in their use, by an overweight proportioned to the magnitude, the kind of use the weight is intended for, and the usage it may have to withstand; as, after a while, such weights would otherwise too soon become too light and deviate too much from the accuracy that may be wished in them. By this allowance, they remain longer near enough to the desired accuracy before needing new adjustment.

9. The value of each weight is marked upon a paper fastened to the bottom of its place in the box (in preference to stamping it upon the weights), so that the removal of the weights can never disturb them, the fitting of the weights not admitting of their being misplaced. It is only to be observed that these papers must never be removed.

10. The boxes are expressly made without locks; the cover must be lifted up straight, as the brass bars at the sides direct. When the weights are in, the cover must be screwed down tight to its place by means of the four finger-screw knobs.

F. R. Hassler, Supt.

ard

Standard yards were sent to the principal custom-houses in 1840, with proper instructions for their safe keeping and mode of use in comparisons. The following are the directions relating to their preservation:—

1. The standard shall never be touched with the naked hand warm or in any way damp from perspiration or otherwise. It is proper not to suffer any dust to collect upon it which would occasion hard rubbing; any dust is to be removed, in any case, by wings or feathers of a *wild bird*, because they will not occasion any scratches, like the wings of fowls, ducks, &c. would do.

2. It must not be removed from its place in the box, except for the most important comparison of metallic measures.

ures of ity.

Standard liquid measures were sent to the principal custom-houses in 1842; the following pieces comprising a set:—

One gallon, with a glass cover.
„ half-gallon, „
„ quart.
„ pint.
„ half-pint.

To some of the custom-houses of less importance it was deemed unnecessary to furnish more than the one gallon standard. A standard half-bushel was subsequently sent.

dard o- rs.

Standard hydrometers have also been furnished by the Standards Department at Washington to the several custom-houses since 1825, with a manual and detailed instructions for their use. In 1851, improved centesimal hydrometers, made of glass, by J. C. Greiner and Son, of Berlin, being a combination of Tralles' alcohol meter, with a Fahrenheit thermometer, were substituted for those previously in use.

The standard temperature adopted is 60° Fahr.

ring.

By an Act of Congress, passed in 1799, it was made the duty of every "surveyor" of each port of entry to "examine and try from time to time, and particularly on "the first Monday in January and July of each year, the "weights and measures *and other instruments* used in ascer- "taining the duties on imports, such standards to be pro- "vided at the public expense," &c.

This law had for its object to carry out the provision of the constitution by establishing in all the custom-houses a uniform system of weights and measures, and of gauging casks containing imported liquors. It was, however, clearly shown by Mr. Adams' report in 1821, that a great want of uniformity in the methods of gauging then existed in the custom-houses.

Later reports from Mr. Hassler and his successor showed that up to 1850 the same irregularities existed in the mode of gauging casks.

Under Treasury directions, steps were taken in 1851 for obtaining information respecting the precise methods used at the principal ports, as well as the system followed by the official gaugers in Europe. For this purpose application was made to several of the European Governments for a statement of the official regulations as to the measurement of the capacity of casks, with descriptions of the processes then and previously in use, and of the instruments and tools used by the gaugers.

Full replies, received from the Governments of Great Britain, France, Holland, and Prussia, are appended to Mr. Bache's report of 30th December 1856. They were considered of much value for the decision of the best method of gauging to be adopted; but there is no further information upon the subject. A large number of experiments were subsequently made by the Standards Department at Washington with a view of ascertaining the practicability of gauging by weight, by weighing various liquid articles of commerce, such as oils, syrups, &c., at various temperatures. The results of the first experiments showed that a desirable degree of accuracy could be obtained, and that the principal difficulty consisted in ascertaining the true temperature of the liquid. Further experiments were consequently made, bottles being procured having thermometers inserted in them in such a manner that the bulb occupied nearly the middle of the vessel, the stem coming out at the side so as to have the scale entirely outside, and the top of the neck remaining unobstructed. Tables of the results of all these weighings are appended to the report, and a summary of results giving the *specific gravity and weight of one gallon* of the substances experimented on, at 15° C., and the rate of expansion for 1° C., within the range of temperature observed (0° to 29° C.), or within which uniform results were obtained. The specific gravity of water was assumed as a unit at 15° C., and the weight of one gallon (of the United States) of water at 15° C. = 8·3316 lbs. avoir., it being = 8·3389 lb. at the maximum density of water, or less at 15° C. in the proportion of 1·000875 to 1, according to Despretz, whose table was used for reducing the weight of water to 15° C. For the expansion of the glass vessels, the rate was taken at 0·0000258 for 1° C.

The various syrups, experimented on were subsequently analysed to ascertain the proportions of water, sugar, and other solid matter contained in them.

It was considered that practical results of value were thus obtained upon the subject of gauging by weight.

List of State Standard Weights and Measures.

List of State standard weights and measures.

A complete set of standards of weights, measures, and balances, furnished for each of the States, consists of the following number, which had been delivered to 30 States up to the close of the year 1856.

A set of standard weights composed of the following pieces:—

One 50 pounds avoirdupois „ 25 „ „	arranged in one box.
One 20 „ „ „ 10 „ „ „ 5 „ „ „ 4 „ „ „ 3 „ „ „ 2 „ „ „ 1 „ „ „ 1 „ troy	arranged in one box.
One 10 ounces troy „ 6 „ „ „ 5 „ „ „ 4 „ „ „ 3 „ „ „ 2 „ „ „ 1 „ „ „ 0·5 „ „ „ 0·4 „ „ „ 0·3 „ „ „ 0·2 „ „ „ 0·1 „ „ „ 0·05 „ „ of silver wire „ 0·04 „ „ „ „ 0·03 „ „ „ „ 0·02 „ „ „ „ 0·01 „ „ „ „ 0·005 „ „ „ „ 0·004 „ „ „ „ 0·003 „ „ „ „ 0·002 „ „ „ „ 0·001 „ „ „ „ 0·0005 „ „ „ „ 0·0004 „ „ „ „ 0·0003 „ „ „ „ 0·0002 „ „ „ „ 0·0001 „ „ „	arranged in one box.

Those States to which the balances have been delivered have also been furnished at the same time with a set of avoirdupois ounce weights, in addition to the above, consisting of the following pieces:—

One 8 ounces avoirdupois. „ 4 „ „ „ 2 „ „ „ 1 „ „ „ 0·5 „ „ „ 0·4 „ „ „ 0·3 „ „ „ 0·2 „ „ „ 0·1 „ „ „ 0·05 „ „ of silver wire „ 0·04 „ „ „	

Appendix X.—*continued.*

One 0·03 ounce avoirdupois, of silver wire
„ 0·02 „ „ „
„ 0·01 „ „ „
„ 0·005 „ „ „
„ 0·004 „ „ „
„ 0·003 „ „ „
„ 0·002 „ „ „
„ 0·001 „ „ „
„ 0·0005 „ „ „
„ 0·0004 „ „ „
„ 0·0003 „ „ „
„ 0·0002 „ „ „
„ 0·0001 „ „ „
} arranged in one box.

2. A standard yard measure, with matrix.

3. A set of liquid capacity measures, consisting of the following pieces:—

One gallon measure
One half-gallon measure
„ quart „
„ pint „
„ half-pint „
} arranged in one box.

Each with a ground glass cover.

4. A standard half-bushel, with a ground glass cover, in its case.

Balances furnished to each State.

The balances furnished to each of the States are of three different sizes, for the adjustment of heavy, medium, or light weights, or of large, medium, and small measures of capacity. The balance of the largest size is contained, with its appendages, in five boxes about 5½ feet long, and from about 3½ feet to 10 inches wide, and 20 to 10 inches deep. It requires a space of about 6 by 8 feet to set it up properly. The balance of the medium size requires a space of 6 feet by 6 feet; and that of the smallest size, 3 feet by 3 feet. Instructions are given that these balances should be placed upon a firm foundation, on a ground floor, or partition wall built of brick or other masonry.

Special building for State standards.

With the balances there were also transmitted drawings of plans of a small building, appropriate for the preservation and use of the standards of weights and measures, and it was recommended that such a building should be provided for these elaborate and costly standards; or at least, that they should be preserved in a fire-proof building, and placed upon a very firm floor. It was also stated that the assistant in the Weights and Measures Department would be ready to attend when required to explain and aid the construction of this building and the arrangement of the standards, &c.

County or Local Standards.

County or local standards.

With the view of maintaining uniformity in the weights and measures used throughout the United States, the following recommendations with regard to the local standards in each State have been issued:—

Bache's Report, p. 6.

The standards to be furnished to the counties by each of the States should consist of a standard of length, standards of liquid and of dry capacity measures, and a set of troy and avoirdupois weights, with suitable scales and beams, or balances for testing the town standards.

1. Of length.

1. *The standard of length* should be the *yard*, carefully copied from the United States standard yard. The bar to be longer than the scale to be placed upon it, so that the ends may project beyond the lines between which the yard is measured.

The scales of feet, inches of the first foot, and tenths of the first inch, and tenths of yard with the first tenth divided into hundredths, should be marked upon the yard with fine strokes, transversely to the length; the principal divisions being marked by longer lines than the others. The bar should be a line measure, not cut to the length of the yard, because of the greater facility which it will afford for transferring the yard to other bars by means of a small square similar to the one accompanying the United States standard yards, with which the yards for the counties should likewise be provided; it will also allow of other yard measures being laid upon this in order to compare their lengths and divisions more readily.

2. Of liquid measure.

2. *The standard of liquid capacity measures* should be the *gallon*, containing 231 cubic inches, the half-gallon, quart, pint, half-pint, and gill, all to be made of brass. The body of the vessels to be made of sheet brass, one-tenth of an inch in thickness, thickened at the top by a band to one-fifth of an inch. The bottom to be made of cast brass turned, since the effects of use and of the comparisons, if made with water, will make this necessary. The interior dimensions should be the same as the United States standards. The standards should be without handles, as they will be equally convenient for the purpose of comparing the town standards, and it will tend to prevent their being used for other purposes.

3. Of dry measure.

3. *The standards of dry measures* should consist of the *half-bushel* to contain 1,075·21 cubic inches, the peck, the half peck and quarter peck, to be of a cylindrical form, made of stout sheet brass, one-tenth of an inch in thickness, and thickened at the top by a band, to one-fifth of an inch. The bottom also to be of stout sheet brass, one-fifth an inch thick, and slightly concave, to prevent the spring in the bottom which might occur if the bottom were a plane. The interior diameter of each measure should be equal to the height from the centre of the bottom to the plane of the rim. The half-bushel should have handles for the convenience of handling; but it will be better for the others not to have them; for the reasons mentioned in reference to the liquid measures. The thickness of the bottom, one-fifth of an inch, will be sufficient for these measures, as the comparisons can be made by filling with small seed, rape seed is preferable, and "striking" it. The form proposed, it is believed, will be found to be preferable to that of shallower vessels, or even to any other. It is similar to the French dry measures. It is more convenient for striking and handling than a shallower measure. It is to be hoped that the introduction of this form will be a step towards the final abolition of the practice of heaping measures.

4. Of weig

4. The *weights* should be of the same form and denominations as those furnished to the States, viz.: 50 pounds weight, 25, 20, 10, 5, 4, 3, 2, 1 pounds avoirdupois, and 1 pound troy, avoirdupois ounce weights from 8 ounces to $\frac{1}{10000}$ of an ounce, and troy ounce weights from 10 ounces to $\frac{1}{10000}$ of an ounce; all to be made of brass, and the outside to be turned. The large weights from 50 pounds to 1 pound, and some of the larger ounce weights, may be cast hollow, and filled with lead to the proper weight, having a knob to be screwed in. This is for economy and the convenience of adjustment. The other ounce weights to be solid. The hundredths, thousandths, and ten thousandths, of an ounce, may be made of silver or brass wire, in the same manner as the United States ounce weights, the number of sides of the figure into which they are formed, denoting the weight, as a pentagon for $\frac{5}{10000}$ oz., a quadrangle for $\frac{4}{10000}$ oz., a triangle for $\frac{3}{10000}$ oz., an angle $\frac{2}{10000}$ oz., and a small bar for $\frac{1}{10000}$ oz.

General i struction

Some more general instructions are contained in a report by Professor A. D. Bache, dated 30th July 1848, also laid before Congress and printed. The county standards should be adjusted with care and scientific skill. The corrections for temperature should be applied to the length measure, or else temperatures near the standard be used in adjusting. The capacity measures should be adjusted by the weight of water which they contain, and between the temperatures of 39° and of 52°, when the expansion of brass and water are nearly alike. The balances furnished by the United States will serve for the adjustment of the weights; of the gallon and its parts, and of the smaller subdivisions of the bushel.

It would certainly be desirable that the standards for the towns, townships, parishes, or sections, should have a common origin, and be supplied under State authority. The material might be a cheaper one than that in the county standards, iron being substituted for brass. The length measure might be a simple iron bar, the foot and inch being marked on it by lines. When expense was not objectionable, the form and materials of the county standards might be repeated for the towns. A balance should also accompany the standards. The weights might be of iron, turned, polished, and lacquered, with a cavity, closed by a plug screwing in to admit of adjusting by wire. The capacity measures should be adjusted by the weight or bulk of water which they contain, and between the temperatures of 39° and 52°. No covers or striking plates need accompany these standards, though such a plate should be used in adjusting them.

By these standards the weights and measures in common use would be examined by the sealers in the usual way, using small seed instead of water for adjusting the capacity measures, and striking with a straight edge of wood. The square which accompanies the State standards of length, and by which a wooden rod, held in a position parallel to the standard by wedges, can be divided by the lines upon the standard, is a convenient and simple arrangement for copying.

In every State of the Union there are men connected with scientific professions or with literary and scientific institutions who would direct the construction of the county and town standards, or verify them when made. The work thus done once would not require for a series of years to be touched.

Correcti for tem

In Mr. Hassler's paper is contained a short table for the correction of weighings of the half-bushel for temperature

Appendix X.—*continued.*

from 32° to 44°·6 Fahr., and for atmospheric pressure from 29 to 31 inches. In the later adjustments of the measures of capacity a somewhat different table of corrections for temperature was used by Mr. Hassler's successor, Mr. A. D. Bache, and was recommended as convenient for the adjustments of county standards. The principle of construction of the following table is not stated:—

Table showing the difference between the apparent weight of the half-bushel and gallon measures at different temperatures, and the weight at the temperature of maximum density of water, the standard temperature.

Temperature of Adjustment.	Correction for	
	Half Bushel.	Gallon.
Fahrenheit °.	Grains.	Grains.
35	+45·65	+ 9·81
36	+32·81	+ 7·05
37	+21·24	+ 4·56
38	+10·93	+ 2·25
39	+ 1·87	+ 0·40
40	− 5·93	− 1·27
41	−12·47	− 2·68
42	−17·76	− 3·81
43	−21·78	− 4·68
44	−24·55	− 5·27
45	−26·31	− 5·65
46	−26·87	− 5·77
47	−26·02	− 5·59
48	−24·09	− 5·18
49	−21·09	− 4·53
50	−17·03	− 3·66
51	−11·89	− 2·56
52	− 5·69	− 1·22
53	+ 1·59	+ 0·34
54	+ 9·93	+ 2·13
55	+19·35	+ 4·16
56	+29·84	+ 6·41
57	+41·39	+ 8·89
58	+54·02	+11·61

The sign + indicates that at the corresponding temperatures the number of grains given in the table must be added to the apparent weight to give the weight which the measure would contain at the temperature of maximum density of water, or that the measure contains less than the standard weight. The number of grains marked + must be placed on the side of the balance where the measure is. The number of grains marked − are at the temperatures corresponding to the − corrections to be placed on the counterpoise side of the balance.

The correction used for the height of the barometer in adjusting the gallon measures was 2·05 grains for one inch of the barometer, no change being made for variation in the temperature of the air or mercury. The corresponding correction in the adjustment of the half-bushel was 9·54 grains. In obtaining these numbers the specific gravity of air at the standard pressure of 30 inches and 62° Fahrenheit was assumed by Mr. Hassler, as determined by Sir George Shuckburgh, $\frac{1}{815}$, water at 62° being 1,000. The specific gravity of brass was taken by him also at 8, water being 1. This led to the fraction $\frac{1}{815} \times \frac{7}{8} \times \frac{3}{30}$, which, multiplied by the weight of the water contained in the standard gallon or half-bushel, gave the correction for buoyancy for a change of one inch in the height of the barometer. The table is as follows:—

Correction for the variations of the Barometer from 30 inches.

Barometer.	For the Half Bushel.	For the Gallon.
Inches.	Grains.	Grains.
32·	+19·09	+4·10
31·5	+14·32	+3·07
31·	+ 9·54	+2·05
30·5	+ 4·77	+1·025
30·	0·00	0·00
29·	− 4·77	−1·025
29·5	− 9·54	−2·05
28·5	−14·32	−3·07
28·	−19·09	−4·10
	Difference 0·1 inch, 0·955 grains.	Difference 0·1 inch, 0·205 grains.

Laws of the several States of the Union relating to Weights and Measures.

There are now 34 States and 8 territories in the United States, the total population in 1860 having been 31,445,080, of whom 26,966,662 were whites.

Under the 8th section of the 1st Article of the Constitution of the United States, the Congress is empowered, amongst other things,— regulate weights and measures.

5. To coin money and regulate the value thereof, and of foreign coin, and fix the standard of weights and measures. Stateman's Year Book, 1870.

17. To make all laws which shall be necessary and proper for carrying into execution the foregoing powers, &c.

By the 10th Amendment of the Constitution of the United States, passed Dec. 15, 1791, the powers not delegated to Congress are reserved to the individual States. The powers to enact municipal laws, that is, all laws which concern the States directly and immediately, are amongst the reserved rights of the States, and as such are vested in the State Legislature. These rights include the regulation of weights and measures within each State.

Amongst the official papers transmitted from the Standards Department at Washington, are abstracts of the laws of the several States relating to weights and measures, from 1819 to 1854. It is stated that since the distribution of the new standards, in pursuance of the resolution of Congress of 1836, there has been a great advance towards uniformity in the regulations adopted throughout the Union. Abstracts of Weights and Measures Laws of the several States.

The following are the most material regulations which seem to be generally adopted:— Summary of regulations.

1. The legal hundredweight consists of 100 lbs., and the ton 2,000 lbs.

2. Heaped measure is authorised for commodities customarily so sold; in some States the cubic capacity of the heaped bushel is defined to be 2,564 cubic inches, and the heaped half-bushel 1,282 cubic inches.

3. Many kinds of grains, seeds, and other substances previously sold by measure, are now usually sold by weight, and most of the States have established by law the number of pounds avoirdupois which shall be understood to constitute a bushel, unless there be some special agreement as to the measure between the buyer and seller. These weights are as follows:—

Wheat	60 lbs.,	except in Connecticut, 56 lbs.
Indian corn	56 „	except in two States, 52 lbs. and 54 lbs.
Barley	from 45 lbs. to 50 „	except in Louisiana, 32 lbs.
Rye	56 „	except in Louisiana, 32 lbs.
Oats	from 28 lbs. to 36 „	
Potatoes	60 „	
Beans	60 „	
Corn meal	from 45 lbs. to 50 „	
Hemp seed	44 „	
Bran	20 „	
Clover seed	from 46 lbs. to 54 „	
Flax	55 „ and 56 „	&c.

4. There appears to be no systematic inspection of weights and measures by visiting shops and other places, but all commercial weights and measures are required, under heavy penalties, to be periodically brought to the local officers to be tested with the standards and stamped.

5. For the performance of these duties of verification, *sealers* of weights and measures, as they are generally called, are appointed in the counties by the governor or justices of the county courts; in the towns the sealers are elected by the selectmen.

6. The sealer of each county or town, or in some cases the treasurer, who executes the duties, is required to provide and to keep the requisite standards, balances, &c.; the county standards are to be compared with the State standards once in ten years; the town standards with those of the county once in every five years. These standards are stamped in a prescribed manner.

7. The sealers of weights and measures are every year, after giving public notice of the time and place where they will attend for that purpose, to test and seal the weights and measures used by the public; the fees for which, as well as penalties for using any weights and measures not duly sealed, are specified.

8. In some of the States, the regulations specify the testing and sealing of balances and scales and beams as included in the duties of the sealers.

9. In Pennsylvania, the law prescribes one half of the penalties to be for the use of the poor;

10. And by a special law, passed in 1850, it is provided that in every county of Pennsylvania there shall be established, upon some inalienable public property, a true meridian line and a "four pole chain" measure (22 yards), by which every surveyor is required, in the month of April

Appendix X.—*continued.*

in each year, to adjust his compass and surveying chains, so that upon all returns of surveys the true and not the magnetic bearing should be given.

11. In Texas, the county courts of the several counties are authorised to grant licences to a suitable person or persons to make and vend weights and measures under prescribed regulations, who are, however, not allowed to sell or distribute them until they shall have been inspected by some authorised person to see that they correspond with the standard. No penalties are prescribed in Texas for using false weights and measures.

12. The laws of several States authorise the sealers to seize and break up weights and measures not in conformity with the standard. In three States only, Tennessee, Ohio, and California, is there mention of penalties for frauds in connexion with weights and measures.

13. In Missouri alone, is any regulation mentioned for the inspection of weights and measures as distinct from their verification. The law of 8th December 1834 requires each constable from time to time to inspect the measures and weights used by millers, merchants, grocers, pedlars, and other dealers within his township, and to report to some justice of the peace any violation of the Act.

Conclusion. In conclusion, it may be pointed out that the improvements in the standard weights and measures throughout the United States, carried out in 1836, were based upon the principle of establishing a practical uniformity in the standards by selecting such as were in most general use, and all innovations were specially and intentionally avoided.

The course recommended by Mr. Hassler, which was adopted by the Government and by Congress, was that which had been proposed by Mr. Adams in 1821, that no alteration should then be allowed in the system recognised in the country; it being considered that no partial attempts at change or improvement should be made which might tend to impede or frustrate the one great and important object to be kept steadily in view, that of consulting with foreign nations for the future and ultimate establishment of universal and permanent uniformity in the weights and measures of all civilized countries.

It was for this reason that the imperfections of the existing system were provisionally continued, including not only the concurrent use of two systems of weights, the troy and avoirdupois scale, each having its pound, ounce, and dram, but also the want of any definite relation between the two standard units of capacity for dry and liquid measures, the bushel and gallon, the latter being to the bushel in the ratio of 1 to 9·30908, &c.

The general adoption of the French metric system has, for a considerable period, been looked forward to by some of the most eminent men in the United States as the means of thus establishing an universal and international system of weights and measures. But they have bided the time when their object might best be attained. The permissive use of the metric system has already been legalised throughout the union, and the use of metric gramme weights in post offices. The Government of the United States has also been one of the first to accept the invitation of the French Government to send representatives to the proposed International Standards Commission at Paris, appointed for the construction of primary metric standards for every country in which the metric system is adopted or its adoption contemplated.

H. W. Chisholm,
Warden.

Standards Department,
21st February 1870.

Part II.—Postscript to the preceding Paper, on the Standard Weights and Measures of the United States of North America.

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Part II.

Further official documents received from Washington. Since the completion of the preceding paper, some further printed official documents have been transmitted to this department from the Standards Department at Washington, which appear to be deserving of the notice of the Commission.

Report on measurement of alcholic liquors. Amongst the papers is an important Report of a Committee of the National Academy of Sciences, appointed by the Treasury on 15th February 1866, to inquire into the best method of proving and gauging alcoholic liquors, with a view to the establishment of such rules and regulations as might be necessary to ensure a uniform system of inspection of spirits subject to duties.

Objections to the existing system. The Report is dated 21st July 1866. It appears that up to this period, spirits were proved and gauged for taxation by the mode adopted upon the recommendations of a Report by Professor A. D. Bache, dated 26th May 1848; this Report being described as containing an exhaustive review of the scientific investigations and practical methods in all countries up to that time.

These recommendations were to the following effect:—

1. That the strength of spirits should be expressed in per centums of alcohol contained by volume.
2. That no reference be made in terms of "proof" spirits.
3. That all gaugings or measurements of alcoholic liquids be referred to the standard temperature of 60° Fahr.
4. That the per centum of volume of pure alcohol contained in a liquid be stated by reducing it to its equivalent at the same standard temperature of 60° Fahr.
5. That the centesimal hydrometer be adopted in determining the strength of liquids, the Tralles alcoholmeter being provisionally used, until a better instrument was furnished.

The Committee objected to the Tralles hydrometer on the following grounds:—

1. The nonconformity of its scale with the custom of the trade, all liquors being bought and sold by their per-centage of *proof spirits*.
2. That the result was not shown by this instrument with the accuracy required for proof spirits.
3. That it was not adapted for practical use in the open air, the effect of the wind upon the exposed part of the stem being found very objectionable.
4. The practical inconvenience to the several trades of using only one instrument for ascertaining the specific gravity of all liquids, the corresponding values of which would be inferred by reference to tables.

They also condemned hydrometers of the usual construction, being of silver or brass, having spheroidal bulbs and two or more scales on the stem, with corresponding weights to be attached to the bulb, when used in denser spirits. They considered this form objectionable on account of the liability of the instrument to error by accident or design, from indentation of the bulb, or alteration of the weight.

New system of standard hydrometer for testing strength of spirits. The general opinion of the Committee being that the Government inspection and the instrument used should conform to the customs of trade, so far as might be consistent with scientific principles, they determined to adopt an instrument expressly adapted to alcoholic spirits. They were of opinion that a hydrometer of glass, sufficiently

Appendix X.—*continued.*

strong to bear ordinary handling, but which would break with a blow or fall that would change the form of one of metal, was far preferable to those of the usual construction, and that a separate thermometer should be used to be placed in the liquid tested. They approved of the existing practice of referring all measurements of alcoholic liquids to the standard temperature of 60° Fahr.

They recommended, (and their recommendation has since been embodied in the law), that proof spirit shall he held and taken to be that alcoholic liquor which contains one-half its volume of alcohol of the standard specific gravity of 0·79390 at 60° Fahr.; and that the duties on all spirits should be levied according to their equivalent in proof spirit. And they adopted the specific gravity of proof spirit thus defined, as determined by experiments of Gilpin and Blagden made for the British Government, to be 0·93353 at 60° Fahr.; water at its maximum density, or about 39°·4 Fahr., being taken as unit, and its specific gravity at 60° Fahr., being 0·99910.

They found 100 parts by volume of this legal proof spirit containing *in combination* one-half of its volume of alcohol, to be composed of 50 parts of absolute alcohol and 53·71 parts of water; and that the difference between the sum of the parts of alcohol and water and the resulting 100 parts of proof spirit, was owing to the contraction which takes place when alcohol and water combine.

They approved of the construction of a series of five distinct hydrometers, made of glass, and adapted to the whole range of liquors from water to alcohol, or 0 to 200 per cent., viz., 0 for water, 100 for proof spirit, and 200 for absolute alcohol, the scale being divided as follows:—

1. From 80 to 120 per cent. for ordinary and proof spirits.
2. From 100 to 140 per cent. for extra proof spirits.
3. From 130 to 170 per cent. for the highest proof spirits.
4. From 160 to 200 per cent. for alcohols.
5. From 0 to 100 per cent., from water to proof spirit, and for occasional use with wines.

Each hydrometer consists of a glass cylindrical bulb about 1 inch in diameter and 3 inches long, loaded with the requisite weight placed in the bottom of the bulb and fused there into a closely fitting button, and having a cylindrical neck about ¼ inch in diameter and 4½ inches long, graduated to indicate the true per-centage of proof spirit at the temperature of 60° Fahr.

For testing the alcoholic liquor they gave the preference to the ordinary copper can, 8 inches in height and 2 in diameter, with a thermometer attached so as to have the bulb in contact with the liquid, and protected from injury by projecting rims of metal. The can to be always full when the hydrometer is immersed in the liquid, so that the reading should be taken with the eye nearly in the surface plane of the liquid.

The requisite tables of calculation for the various degrees of strength and of temperature are contained in the Report. These tables are also based upon the experiments made by Gilpin and Blagden.

The Committee also recommended that hydrometers should be tested by a Government officer, and as no stamp could be placed upon them, that they should be manufactured with a label on the inside of the bulb, designating them as Government standards.

That the hydrometers and tables should be issued to inspectors by the Government free of charge, with a certain allowance for breakage; it being understood that the full set of hydrometers, with a cup and thermometer, packed in a neat box, could be supplied at a cost of 20 dollars (4*l.*), and single hydrometers, to supply breakage, at two and a half dollars (10*s.*).

Mode of measuring quantity of spirits in casks.

Considering that all methods of measuring or gauging the contents of casks were uncertain, and that the volume of a given quantity of spirits varies considerably with the temperature, whilst the weight can be readily ascertained and is not variable with the temperature, the Committee recommended that instead of gauging, the quantity of spirits should be estimated by means of their weight. With this view, a table of the number of gallons corresponding to different weights and strength of spirits is submitted in the Report.

Completion of standard weights, &c.

A printed Report from Mr. Pierce, the Superintendent of Standard Weights and Measures of Washington, dated 15th November 1869, refers to the completion of the delivery of standard weights, measures, and balances of the United States to the authorities of the several States and territories of the Union, and to the requisite preparations for their reception and safe custody. for the several States.

It contains also an account of the progress of construction of metric standards for the several States, in pursuance of the resolution of Congress of 27th July 1866, authorising and directing one set of the standard weights and measures of the metric system to be furnished to each State. Progress of construction of metric standards for the States.

Authentic copies of the primary metric standards at Paris had already been deposited in the Standards Department at Washington, and were available as the basis of construction of the new metric standards.

A programme, fixing the denominations, form, material, and mode of verification of the standards to be furnished, was agreed upon by a Committee of the National Academy of Science at the annual meeting in August 1867, and was submitted to and approved by the Treasury.

The following is a copy of this programme:—

Programme of Metric Standards for the United States.

1. *List of Standards to be furnished to the States.*

Length. One meter, end measure.
One meter, line measure, divided.
Weight. One kilogram.
One demi-kilogram.
One grain, with subdivisions.
One ten kilogram.
Capacity. One liter.
One decaliter.

2. *Particulars of Meters.*

The end measure to be of cast steel, ten millimeters thick, thirty wide, with cylindrical ends and small cylindrical projections in the axis, of hardened steel, with abutting faces three millimeters in diameter, to be equal to one meter, legal standard of France, at the temperature of melting ice.

The divided line measure to be of brass, composed of three parts of copper to one of zinc, the bar extending beyond the terminal lines, divided into decimeters, one decimeter into centimeters, and one centimeter into millimeters, the length between the terminal lines being equal to one meter at a temperature of the bar of about 70° Fahrenheit, and each bar to bear an inscription stating the temperature at which its length is equal to one meter; each of these line measures to be provided with a convenient tracing frame for copying the divisions.

3. *Particulars of Weights.—Kilogram.*

The kilogram to be of brass, of an ascertained specific gravity, to be equal when weighed in a vacuum to the weight of the French platinum standard kilogram in vacuum.

Demi-kilogram, gram, and fractions to milligram.

Myriagram or ten kilograms.

The form of the weights to be similar to the present American standard weights, so as to be handled with hooks, forks, and pincers, which will be provided.

4. *Particulars of Capacity Measures.*

The standard liter to be of brass, composed of fifteen parts of the brass used for the meters, melted together with twelve parts of copper and one part of tin, of a form similar to the American quart, containing a volume of distilled water, which when weighed in vacuum equals the weight of one French standard kilogram in vacuum, the water being at the temperature of its greatest density, and the vessel at the same temperature.

The decaliter will of course contain ten liters, as thus defined.

5. *Verifications.*

The verifications of all these standards should be made in duplicate by different persons.

Washington, 16th September 1867.

It is added that a detailed statement of the considerations which the Committee had in view, when framing this programme, and of the processes of adjustment and verification employed, would find its appropriate place in a Report to accompany the completed standards; that at the date of the Report, 15th November 1869, the work of construction, adjustment, and graduation was in a very advanced state; and that the independent verification provided by the programme had been entered into, to be pursued during the favourable low temperatures of the winter, and it might be expected that the greater part of the standards would be ready for delivery in the coming spring.

H. W. CHISHOLM,
Warden.

Standards Office,
16th April 1870.

APPENDIX XI.

PAPER DELIVERED BY THE WARDEN OF THE STANDARDS.

GENERAL REGULATIONS and OFFICIAL INSTRUCTIONS for carrying out the WEIGHTS and MEASURES LAW of 17 August 1868 throughout the NORTH-GERMAN CONFEDERATION; issued by the STANDARDS COMMISSION of the NORTH-GERMAN CONFEDERATION at BERLIN. (*Translated from the German.*)

Note.—The German printed copy of the official regulations and instructions, of which the following paper is a translation, is preceded by the text of the law of 13 June 1868; for the regulation of weights and measures for the North-German Confederation. A copy of this law, both in the original German, and translated into English, has already been given at page 109 of Appendix III. to the Second Report of the Standard Commission.

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PART I.

ON THE MATERIAL, FORM, DENOMINATIONS, &c. OF THE NEW WEIGHTS AND MEASURES WHICH ARE APPOINTED TO COME INTO LEGAL USE FROM 1st JANUARY 1872, AND TO BE RECEIVED FOR COMPARISON WITH THE STANDARDS FROM 1st JANUARY 1870; AND ON THE LIMITS OF DEVIATION TO BE ALLOWED BY STANDARDS OFFICERS IN COMPARISONS OF THESE MEASURES AND WEIGHTS.

I. MEASURES OF LENGTH.

§ 1. *Measures admissible for Verification, and their legal denominations.*

The measures of length admissible for comparison with the Standards and their denominations are as follows:—

20 meter.
10 meter or 1 decameter.
5 meter.
2 meter.
1 meter.
0·5 meter, or 5 decimeter, or 50 centimeter.
0·2 meter, or 2 decimeter, or 20 centimeter.
0·1 meter, or 1 decimeter, or 10 centimeter.

These measures must be marked with their denominations in full, according to the preceding designations. In those cases in which several denominations are assigned to the same measure, it is optional to adopt any one of these metric denominations. In the case of a measure of the length of 10 meter, the name in full "Kette" (*chain*) may be inscribed, and of a measure of 1 meter length together with its above-mentioned multiples and parts, the full name "Stab" (*staff*), may also be inscribed; but in each of these cases the name must be preceded by the metric denomination.

§ 2. *Material, form, and mode of Construction of Measures of Length.*

All measures to be admitted for comparison must be made of such material, and constructed in such form and manner as to preclude any alteration in their length, when used for trade purposes, beyond the limits of deviation allowed.

Line and end measures in one piece, being of sufficient solidity and hard material, and affording due security against being bent, may accordingly be admitted for comparison. In the case of flat end measures of wood, down to 0·5 meter in length, the flat ends must be protected with metal.

Measures consisting of several pieces are also admissible when the several moveable parts which represent the normal length of the whole measure are joined together in such manner as secures sufficient solidity.

Ribbon measures when made of material not liable to vary in length, for instance, of metallic-plate, are also admissible.

Measures fulfilling these requirements may be admitted for comparison, even when forming parts of other measuring instruments, provided this combination does not impede the comparing operations, and their execution in conformity with the rules prescribed.

§ 3. *Mode of Comparison, and allowance for Errors of Measures of Length.*

The comparing operations of measures of length, as to which more minute directions are given in a special instruction, must include both the total length and the divisions.

No measure must be stamped until it shall have been proved, by comparison with the standards, that the total length of the measure does not show a greater deviation either in excess or deficiency, than that fixed by the following regulation A, and that the divisions are in accordance with regulation B.

A.—Greatest deviation allowed in the total length.

(1.) For metallic measures of precision (with finely marked divisions) the stated accuracy of which, when in actual use, is liable to be affected only by changes in the temperature, and these not being taken into account.

On the length of 1 meter - - 0·1 millimeter.
„ 0·5 „ to 0·1 meter 0·05 „

(2.) For ordinary measures of metal, or from 0·5 meter of ivory, hard wood, &c.

On the length of 2 meter - - 0·75 millimeter.
„ 1 „ - - 0·5 „
„ 0·5 „ to 0·1 meter 0·25 „

(3.) For measuring rods of wood (the ends lined with metal).

On the length of 5 meter - - 4·0 millimeter.
„ 2 „ - - 1·5 „
„ 1 „ - - 0·75 „

(4.) For trade measures of wood lined with metal, divided only in centimeters.

On the length of 1 meter - - 1·0 millimeter.
„ 0·5 „ - - 0·75 „

(5.) For folding measures.

On the length of 1 meter - - 1·0 millimeter.
„ 0·5 „ - - 0·75 „

Appendix XI.—*continued.*

(6.) For ribbon measures of metallic plate.

On the length of	20 meter	- -	3·5 millimeter.
„	10 „	- -	2·25 „
„	5 „	- -	1·75 „
„	2 „	- -	1·25 „
„	1 „	- -	0·75 „

B.—*Allowance for Errors on subdivisions of Measures of Length.*

The error of any one of the subdivisions from the nearest of the two ends of the measure is in no case to exceed one-half of the error allowed in its total length.

The only exception to be made is in the case of the measures of precision, (1.) of from 0·5 to 0·1 meter long, and of trade measures, (4.), as to which the limit of error of any subdivision, taken from the nearest of the two ends, is extended to the error allowed in the total length.

§ 4. *Stamping.*

The stamp is to be affixed close to the end of the measure. In the case of wood measures protected at the ends with metal, the stamp must be placed half upon the wood and half upon the metal cap, and particularly upon the flat end of the cap.

In the case of measures consisting of separate parts, a stamp must also be placed upon the joints of the parts, so that a portion of the stamp appears upon each part, and where this cannot possibly be done, upon each of the separate parts.

In the case of measures of precision, a star with six rays must also be stamped upon them, as well as the stamp of the Standards Office.

II. Liquid Measures of Capacity.

§ 5. *Liquid Measures admissible for Comparison.*

Liquid measures for public trading purposes are admitted for comparison and stamping only when of the following denominations:—

20	liter or kannen.	
10	„	„
5	„	„
2	„	„
1	liter or kanne.	
$\frac{1}{2}$	or 0·5 liter or kanne	=1 schoppen.
$\frac{1}{4}$	- „	„
	0·2 „	„
$\frac{1}{8}$	- „	„
	0·1 „	„
$\frac{1}{16}$	- „	„
	0·05 „	„
$\frac{1}{32}$	- „	„
	0·02 „	„

Each measure to be admitted for comparison must be so constructed as to allow its liquid capacity to be accurately measured within the deviation allowed in trade, and so as to offer sufficient resistance to unavoidable accidents when in use, and to allow any intentional damage to be easily detected. It must also accord with the following regulations in regard to the denomination marked upon it, the form, material, and other conditions:—

§ 6. *Denomination marked upon the Measure.*

The denomination of the liquid measure of capacity must be clearly marked upon it, and so that the mark cannot be separated from the measure, the unit, multiple, or part of the liter being followed by the word liter, or the letter L. The decimal parts must be expressed by decimal fractions, and the binary parts by vulgar fractions. It is permitted to add to this metric denomination the German names in full.

§ 7. *Material.*

Measures to be admitted for trade purposes must be made of pewter, tin-plate, brass, or copper; in the two latter cases however they must be completely and well tinned inside with pure tin.

§ 8. *Form and Dimensions.*

Measures of 2 liter capacity and the smaller binary subdivisions must be constructed of cylindrical shape, with the following proportionate diameter to the height:—

—	Diameter.	Height.
For the 2 L., 1 L., and $\frac{1}{2}$ L. measure as	1	2
$\frac{1}{4}$ „ „	1	1·9
$\frac{1}{8}$ „ „	1	1·8
$\frac{1}{16}$ „ „	1	1·7
$\frac{1}{32}$ „ „	1	1·6

But as it is difficult in constructing such measures to adhere strictly to this proportion, deviations in the size of the diameter up to 5 per cent. more or less may be allowed.

The dimensions of these liquid measures will accordingly be expressed in millimeters, as follows:—

Denomination of Measure.	Proportions		Deviations allowed in the Diameter.	
	Of Diameter.	Of Height.	Highest.	Lowest.
L.	mm.	mm.	mm.	mm.
2	108·4	216·7	114	103
1	86·0	172·1	90	82
$\frac{1}{2}$	68·3	136·5	73	64
$\frac{1}{4}$	55·1	104·8	58	52
$\frac{1}{8}$	44·6	80·1	47	42
$\frac{1}{16}$	36·0	61·4	38	34
$\frac{1}{32}$	29·2	46·7	31	28

In order that measures of capacity on the decimal scale of 0·2, 0·1, 0·05, and 0·02 liter may be distinguished from approximate measures in a binary scale, they must be constructed in the form of truncated cones, the upper diameter of which should correspond with that required for the cylinder in the case of the nearest measure of the binary scale, the lower diameter exceeding the upper by one half.

The dimensions of the measures and the deviations allowed in the upper diameter will consequently be as follows:—

Denomination of Measure.	Proportions of			Deviations of upper Diameter allowed.	
	Diameter.		Height.		
	Upper.	Lower.		Highest.	Lowest.
L.	mm.	mm.	mm.	mm.	mm.
0·2	51·2	76·8	61·4	54	49
0·1	41·4	62·1	46·9	43	39
0·05	33·5	50·3	35·8	35	32
0·02	25·2	37·8	25·3	26	24

Measures of 5, 10, and 20 liter capacity must be constructed in the form of a cylinder or barrel, with a smaller cylindrical neck not exceeding 10 centimeter in diameter by means of which the capacity of the measure may be more accurately measured.

Measures of capacity of all denominations are allowed, the true capacity of which can be estimated either from the level surface of the liquid when in the plane of the upper rim, or at a lower plane.

In both cases spouts are allowed, the capacity of which must form part of the capacity of the measure.

In the latter case, the true capacity may be ascertained, either by two spout openings opposite each other, or by *one* such opening and a small peg diametrically opposite, instead of which two pegs may be used, each distant a third part of the periphery from the opening; or by two pegs diametrically opposite, and also by three pegs distributed over the periphery at equal distances.

§ 9. *Other conditions.*

All measures, the capacity of which are to be estimated by the plane of the upper rim, must have the latter sufficiently strengthened externally; in the case of pewter measures this must be done by bands soldered thereon; in the case of tin-plate measures a band of zinc is also allowed, or the rim may be bent over a wire.

The bottoms must not be soldered in as mere discs, but must be made with the edge bent over the lower rim. It may either be turned upwards so as to be closely fitted to the outside of the bottom of the cylinder, or turned downwards, and thus fitted to the inside of the bottom of the cylinder; in both cases it must be soldered to the bottom of the cylinder.

The bottoms must be even, and, in the case of larger measures, be strengthened by rims soldered on the outsides.

Spouts, which form a part of the true capacity of the measure, must be strengthened up to their extremity in the same manner as the other part of the plane which defines the capacity of the measure.

Pins or pegs must not be soldered but riveted in, and they must have a small piece of pewter on the outside of the measure to receive the stamp.

The denomination must either be engraved or embossed on the measure itself, which may also be done in the case

Appendix XI.—*continued.*

of tin measures upon a tin plate, riveted on, or they may be placed upon a shield and soldered on, but the latter must be fixed to the measure by a small piece of pewter for receiving the stamp.

In the case of measures consisting of several parts soldered together, the jointures must be provided with small pieces of pewter for the stamp, whenever the stamp cannot be placed immediately on the solder.

§ 10. *Liquid Measures not admissible for Comparison.*

All measures not in accordance with the foregoing regulations, especially measures of zinc plate, are not admissible for comparison; nor those with vaulted bottoms; measures with tin rings instead of pins to indicate the measuring surface; measures the capacity of which is meant to be indicated by the upper rim, if its surface does not lie parallel with the bottom, or does not form a level plane.

§ 11. *Mode of Comparison and Allowances for Errors of Liquid Measures.*

In all comparisons, the preceding regulations must be observed, and the testing can only be proceeded with if there is no greater deviation in excess or deficiency from the standard, as regards the capacity of such measures, than the following:—

For measures of from 20 L. to 1 L. - - $\frac{1}{400}$
„ „ 0·5 L. to 0·2 L. - - $\frac{1}{200}$
„ „ $\frac{1}{8}$ L. to 0·02 L. - $\frac{1}{100}$

§ 12. *Verification of Casks.*

Such casks only can in any case be admitted for the determination of their capacity as are unimpeachable with regard to the solidity of their construction and to their other conditions.

The capacity is to be determined in the manner mentioned in the Instruction, and must be marked upon them in tenths of a liter within $\frac{1}{300}$ of their contents, when the comparison is completed.

§ 13. *Stamping of Liquid Measures and Casks.*

The verification of liquid measures to be filled up to the brim is effected by two diametrically opposite stamps upon or close below the rim; that of measures with spout openings by stamps close below the lower rim of each such opening; that of pin measures by stamps on the small lump of pewter placed upon each pin outside the measure.

For each case of measures consisting of separate parts joined by soldering, the small lumps of pewter upon the soldered joints must be stamped; and the bottoms of pewter measures at two places diametrically opposite to each other.

In the case of casks, the marks must be branded upon one of the ends, or in the case of smaller casks upon the circumference, the marks to denote the capacity in liters and tenths of a liter, with the addition of the letter L, together with the registered number and the date mark, and lastly the stamp of the verifying office.

III.—Dry Measures of Capacity.

§ 14. *Dry Measures admissible for Comparison.*

Measures intended for public trade, in order that they may be admitted for comparison and stamping, must be of the following denominations only:—

1 hectoliter, or 1 cask.
$\frac{1}{2}$, or 0·5 hectoliter or 1 bushel.
$\frac{1}{4}$ hectoliter, or $\frac{1}{2}$ bushel.
20 liter.
10 „
5 „
2 „
1 „
$\frac{1}{2}$, or 0·5 liter.
$\frac{1}{4}$, or 0·2 „
$\frac{1}{8}$, or 0·1 „
$\frac{1}{16}$, or 0·05 „

As to the general conditions of dry measures to be admitted for verification, similar regulations to those laid down in § 5 for liquid measures are applicable.

§ 15. *Denominations marked on Dry Measures.*

The denomination must be marked in a clear manner, and so as not to be separated from the measure; in the case of the three larger measures by "1 H., 0·5 H.," or "$\frac{1}{2}$ H." and "$\frac{1}{4}$ H.," or the full word may be used, and also the German name "1 Fass" (*cask*), "1 Scheffel" (*bushel*) "$\frac{1}{2}$ Scheffel" added; in the case of the smaller measures by the figures and fractions mentioned in the preceding paragraph, with the addition of "L" or "Liter."

In the case of wooden measures, if the denomination is to be marked by the verifying office, it is to be limited to the letters "H." or "L." and the requisite figures.

§ 16. *Material.*

Dry measures of all legal sizes for trade purposes may be made of iron plate or copper plate, or of wood.

§ 17. *Form and Dimensions.*

All measures of this kind, down to the $\frac{1}{2}$ liter and the smaller measures on the binary scale, must be made in the shape of a cylinder, the proportion of the diameter to the height being, as a general rule, as 3 to 2.

But as it is difficult in making such measures, to adhere very strictly to this proportion, deviations from the stated dimensions of the diameter are allowed up to 3 per cent. for measures of 1 H. to 1 L., and up to 5 per cent. for the smaller measures, both in excess and deficiency.

The following table shows the diameters allowed in the several denominations of dry measures:—

Denomination of Measure.	Regulated Diameter.	Maximum Diameter.	Minimum Diameter.
	mm.	mm.	mm.
1 H.	575·9	593	559
0·5 „	457·1	471	443
$\frac{1}{4}$ „	362·8	374	352
20 L.	336·8	347	327
10 „	267·3	275	259
5 „	212·2	218	206
2 „	156·3	161	152
1 „	124·1	128	120
0·5 „	98·5	103	94
$\frac{1}{5}$ „	78·1	82	74
$\frac{1}{8}$ „	62·0	65	59
$\frac{1}{16}$ „	49·2	52	47

Dry measures on the decimal scale of 0·2 L., 0·1 L., and 0·05 L. are also admissible; but only when of the shape prescribed in § 8 for liquid measures of the same size, for the reason there stated.

Larger measures of wood may be made of thin bent wood or of staves, and the smallest below $\frac{1}{2}$ liter may also be turned of solid wood.

§ 18. *Other Conditions.*

In the case of all measures, the bottom must be joined securely and firmly to the cylindrical portion of the measure.

In order to preserve their shape, measures of iron plate or copper plate must have an even and sufficiently broad rim.

Wooden measures must be well dried.

For the purpose of securing the connection of the bottom with the sides, and in general preserving the shape, and as a guide to the strike, dry measures made of thin bent wood, of 1 H. and $\frac{1}{2}$ H. must be provided with a lining of band iron firmly joined to the bottom and the sides, and with a strengthening stay lying diametrically above.

Measures of thin bent wood of $\frac{1}{4}$ H., 20 L., and 10 L., and smaller sizes need not be provided with a strengthening stay; the three former, however, must be furnished with a proper hoop.

In the case of measures with staves each stave must be joined to the iron hoops which confine them.

Minute directions for more conveniently carrying out these precautionary regulations, and for the fastening of handles, are contained in the official Instruction.

§ 19. *Dry Measures not admissible for Verification.*

No measures which are not in conformity with the preceding regulations will be admitted for comparison and stamping. Detailed directions thereon are contained in the official Instruction.

§ 20. *Mode of Comparison of Dry Measures, and Allowance for Errors.*

Upon the comparison of dry measures, the several directions contained in the official Instruction are to be observed, and no measure must be stamped if, on comparing it with the standard, the error, either in excess or deficiency, shall exceed the allowance stated in the following table:—

Appendix XI.—*continued.*

For a Measure size of	Error allowed in Metal Measures.	Error allowed in Wooden Measures.
From 1 H. to ¼ H.	$\frac{1}{500}$	$\frac{1}{250}$
„ 20 L. to 1 L.	$\frac{1}{400}$	$\frac{1}{200}$
„ 0·5 L. to 0·2 L.	$\frac{1}{200}$	$\frac{1}{100}$
„ ⅛ L. to 0·005 L.	$\frac{1}{100}$	$\frac{1}{50}$

§ 21. *Stamping of Dry Measures.*

All metallic measures must be stamped in the same manner as prescribed by § 13 for liquid measures of the same denomination and construction. If provided with handles, one of the rivets of each handle must be stamped in order to prevent an alteration of the form of the measure in case of the handle being affixed after the verification of the measure.

All wooden dry measures of capacity must be stamped at three places at equal distance from each other on the upper rim, for which operation, in case of the full stamp of the verifying office not being applicable from being too large, the stamp bearing the general standard mark may be used.

All wooden measures must be marked upon the inside at the bottom, as well as outside upon the cylindrical side, with the full stamp.

In the case of dry measures made of thin bent wood, in order to secure that the bottom is firmly fixed to the sides, three stamps must be affixed at equal distances upon the circumference, so that each stamp stands partly on the side and partly on the bottom.

In the case of stave measures, these stamps must be placed upon the inner side of the protruding stave ends in such a manner as to stand close to the under side of the bottom.

IV.—Weights.

§ 22. *Weights admissible for Verification.*

Weights for public trade will be admitted for verification and stamping only of the following denominations:—

50 kilogramm, or 1 centner (*cwt.*).
50 pounds, or ½ centner.
20 kilogramm.
10 „
5 „
2 „
1 „
500 gramm, or 1 Pfund (*pound*).
½ pound.
200 gramm.
100 „
50 „
20 „
10 „ or 1 dekagramm, or 1 neuloth.
5 „
2 „
1 „
5 decigramm.
2 „
1 „
5 centigramm.
2 „
1 „
5 milligramm.
2 „
1 „

Every weight to be admitted must have a regular and even surface, so that any injuries intentionally caused may be easily seen; the denomination must be marked upon it, and the form, material, and other conditions be in conformity with the following regulations; it must also be so constructed as to allow the stamp of the Standard Office to be easily applied, and so that this stamp as well as the denomination marked upon it may be easily recognised when the weight is placed in its normal position.

§ 23. *Denominations marked upon Weights.*

Every weight must have its legal denomination clearly marked upon it, so that the mark cannot be separated from the weight.

The following weights on the decimal scales, consisting both of units and their multiples and parts are admissible for verification.

Kilogramm, from 50 K. to 0·001 K.
Gramm, from 5·00 g. to 0·01 g., with their multiples.
Decigramm, Centigramm, Milligramm } On the established decimal scale 1, 2, and 5.
Dekagramm, including weights, from 200 g. to 5 g.

The names of the five first units may be designated shortly by the initial letters K, G, D, C, M. Such an abbreviation is not allowable as regards the dekagramm, the letter D being already destined for the decigramm, it being actually so used for medicinal weights. For the designation of fractions, only decimal fractions can be employed.

Weights which are not on the decimal scale being multiples or parts of the kilogramm, viz., those of 50 lb. and ½ lb., can only bear the designation 50 Pf. or lb. and ½ Pf. or lb.

All weights being multiples or parts of the kilogramm, from 50 K to 0·5 K may also be designated by their value in pounds.

It is also permitted to add to the above stated designations, the denominations marked in centners and neuloths, and to make use of the abbreviations Ctr. and N.L.

The following table shows the marks of the several denominations which are allowed in accordance with the preceding regulations:—

Table of Denominations to be marked on Weights.

Weights.	Principal Marks, of which *one* is in each Case requisite and sufficient.			Supplementary Marks which may also be used.
	K.	G.		
50 kilogramm -	50	—	100 lb. or Pf.	1 ctr. (cwt.)
50 pounds - -	—	—	50 lb. „	0·5 ctr.
20 kilogramm -	20	—	40 lb. „	—
10 „ -	10	—	20 lb. „	0·2 ctr.
5 „ -	5	—	10 lb. „	0·1 ctr.
2 „ -	2	—	4 lb. „	—
1 „ -	1	—	2 lb. „	—
500 gramm - -	0·5	500	1 lb. „	—
½ Pfund - -	—	—	—	—
200 gramm - -	0·2	200	—	20 N. L.
100 „ - -	0·1	100	—	10 N. L.
50 „ - -	0·05	50	—	5 N. L.
20 „ - -	0·02	20	—	2 N. L.
10 „ - -	0·01	10	—	1 N. L.
5 „ - -	0·005	5	—	0·5 N. L.
2 „ - -	0·002	2	—	—
1 „ - -	0·001	1	—	—
5 decigramm -	—	0·5	5 D.	—
2 „ -	—	0·2	2 D.	—
1 „ -	—	0·1	1 D.	—
5 centigramm -	—	0·05	5 C.	—
2 „ -	—	0·02	2 C.	—
1 „ -	—	0·01	1 C.	—
5 milligramm -	—	—	5 M.	—
2 „ -	—	—	2 M.	—
1 „ -	—	—	1 M.	—

The name in full of each unit is also allowed.

Although the decimal scale of weights renders the specification of a separate *proportional weight* for each decimal or centesimal gradation less necessary, nevertheless weights which bear also, after the principal mark of their own denomination, their corresponding weights in other decimal units, marked in brackets, thereby distinctly showing that they are intended for decimal or centesimal scales, shall not be on this ground excluded from verification and stamping.

§ 24. *Material.*

Platinum, silver, brass, bronze, German-silver, and metallic alloys, similar to these metals as regards hardness and liability to oxidation, may be used for weights of all sizes; for weights down to 50 grammes inclusive, cast iron may be used, and aluminium for centigramm and milligramm weights.

§ 25. *Form and Dimensions.*

Weights of 50 k. intended for trade may be constructed either in the shape of a cylinder with a knob or handle, or if made of cast iron, of spherical shape with a handle. For weights of 50 lb. the latter form only is allowed; for weights of 20 lb. only the former form.

Weights from 10 k. down to ½ lb. inclusive must be cylindrical, and their height must exceed the diameter with a knob.

One exception is to be made as regards the 2 k., the cylindrical form of which in order to distinguish it from the 5 lb. still in circulation must be more compressed, that is to say, the height must be less than the diameter.

Weights of 200 g. to 1 g. must be in the shape of discs, or flat cylinders, and the knob is only to be dispensed with in the case of weights of cast iron of 200 g., 100 g., and

Appendix XI.—*continued.*

50 g. When in the shape of a disc the height of the cylinder must not exceed half the diameter.

Decigramm weights must be made of thin metallic plate of rectangular form, with one edge bent up, and centigramm weights of similar construction with a corner bent up. Those weights are also admissible, the single weights of which, with the exception of the smallest which is solid, have the form of cups fitting one into another, the outer weight having cover and joint so as to form the case. Duplicate weights of the same denomination must have such a form as to prevent their being confounded with the next smaller weight. The kilogramm weight of this description consists of 12 pieces of 500, 200, 100, 100, 50, 20, 10, 10, 5, 2, 2, and 1 gramm respectively, the pound weight of 11 weights of ½ lb. 100, 50, 50, 20, 10, 10, 5, 2, 2, and 1 gramm respectively, and the 200 gramm weight of 9 weights of 100, 50, 20, 10, 10, 5, 2, 2, and 1 gramm respectively. Each of these weights must be marked according to the regulations.

26. *Other Conditions.*

The handles with which larger weights of cast iron may be furnished must be of wrought iron, and must be cast pure, that is to say, without the mixture of any other metal or matter, such as lead and the like.

Weights of cast iron of spherical and cylindrical form must be provided for adjustment with a round hole on the upper surface leading to a cavity. This adjusting hole must be a little narrower immediately over the cavity than on the surface of the weight and somewhat wider between both places in order that the verification plug may hold there and be expanded by pressure in the widening part, and so be retained.

No precise directions can be given as to the size of the lower cavity; the weight must, however, be cast in the rough lighter than of its true weight, in consideration of its being afterwards filled up with adjusting material, the size being as nearly as may be equal to that of a solid weight of the same denomination. The following are the limits of lightness in weights so cast:—

Denomination of Weights.	Maximum Lightness when cast.	Minimum Lightness.
	G.	G.
50 K.	300	100
50 lb.	250	90
20 K.	200	80
10 „	175	70
5 „	150	60
2 „	100	40
1 „	80	30
0·5 K.	60	25
½ lb.	45	20

Weights of cast iron in the form of a disc or flat cylinder must be provided, on their upper surface, with a round and sufficiently deep hole for holding the verification plug, so that it may be securely retained therein.

The verification plugs of both descriptions of cast-iron weights must consist of lead alloyed with about 10 per cent. of tin, copper, or brass (*see* § 28); they must correspond in shape with the adjusting hole and be so made that after being driven in, the stamping surface may as nearly as possible be level with the surface of the weight.

In the case of cast iron weights, the denomination must be cast thereon.

Weights of other metals must, as a rule, be made of one piece; in such case the denomination must be either cast thereon, or marked with a punch, or engraved.

§ 27. *Weights not admissible for Verification.*

Weights which as regards their construction are not in conformity with the above regulations are not to be admitted for verification, and more particularly—

Weights made of soft and infirm metals, such as lead, tin, zinc, &c., and metallic alloys of a similar character;

Weights which have not a properly smoothed surface, duly cleansed from the sand of the mould;

Weights showing on their surface any material pores or cavities from bubbles of air, even if these are filled up with cement, zinc, lead, &c.;

Weights cast with a protruding rim at the lower part, or turned so as to produce such rim;

Weights which have moveable handles and knobs merely screwed on;

Nest weights unless each single weight is marked with the requisite denomination.

§ 28. *Mode of Comparison of Weights and Allowance for Errors.*

The verifying officers are to compare each weight according to the directions prescribed in the official instructions, and must not complete their verification by stamping if the error either in excess or deficiency exceeds the following limits:—

Denomination of Weight.	Error allowed.	
	a. Weight of Precision.	*b.* Ordinary Trade Weights.
50 K.	25 D.	5 G.
50 lb.	20 „	4 „
20 K.	20 „	4 „
10 „	125 C.	25 D.
5 „	625 M.	125 C.
2 „	300 „	60 „
1 „	200 „	40 „
500 G.	125 „	25 „
1 lb.	62·5 M.	12·5 C.
200 G.	50 M.	10 C.
100 „	30 „	6 „
50 „	25 „	5 „
20 „	15 „	3 „
10 „	10 „	2 „
5 „	6 „	
2 „	3 „	
1 „	2 „	
5 D.	1 „	
2 „	1 „	
1 „	1 „	

In the case of weights of precision of denominations from 5 C. to 1 M., each of which must be made as accurate as possible, a total error is allowed in respect of every four weights taken together, which compose the next higher unit, up to $\frac{1}{100}$ of the requisite weight of such unit.

In the case of ordinary trade weights, no greater deviation for the weights of 5 g., the two 2 g., and one 1 g. taken together, is allowed than 5 per cent.

The verification plugs for weights of precision should be made of brass, and for ordinary trade weights, of copper, or of lead with about 10 per cent. alloy of tin.

§ 29. *Stamping of Weights.*

Weights provided with verification plugs are to receive the stamp of the verifying office upon the surface of the plug; solid weights of brass and bronze and similar metals, which are in the form of a cylinder or disc, are to be stamped both upon the upper and the lower flat surfaces of the weight when in its normal position; and similar weights in the shape of metal plates only upon the upper surface. Each single weight in a nest set is to be stamped upon the bottom, both inside and outside.

Whenever the size of the surface to be stamped admits, the full stamp of the verifying office is to be used, and with respect to the smallest weights, the stamp which bears the mark common to all offices of verification.

Weights of precision are to receive in addition upon their upper side a stamp in the shape of a star with six rays.

In the case of all weights, when at all practicable it is permitted after the first or subsequent verifications to add to the stamp of verification that of the date of the year.

§ 30. *Medicinal Weights.*

With regard to medicinal weights further instruction are reserved.

PART II.

REGULATIONS IN RESPECT OF BALANCES AND OTHER WEIGHING AND MEASURING INSTRUMENTS.

I.—Balances.

§ 31. *Balances generally admissible for Verification.*

Only such descriptions of balances will be admitted for verification, which theoretically as well as practically afford a guarantee that they possess sufficient sensibility, capability of bearing the requisite weight, and accuracy as well as durability for the purposes of trade.

Lever balances will therefore be admissible, under such circumstances, for verification, but only such descriptions as from their method of construction may be expected to fulfil the following general conditions of verification:—

Appendix XI.—*continued.*

Every balance to be admitted must, whether charged with weights or not, return to the original position of equilibrium, after having been made to oscillate.

No part of the balance, when charged with the highest load intended for it, must show any alteration of form; the several bearings where there is any friction during the vibrations of the scale, such as the knife edges, &c., must be of sufficient hardness not to wear too fast; they must have such length as to prevent the centres of vibration being perceptibly altered by change of position; their friction planes must be of the least possible extent, so as to act without jamming or lateral friction, and in such a way as to allow the fullest play to the mechanism of the balance.

The knife edges at each lever point must also be in a position rectangular to the axis of the beam, as well as parallel with each other and unalterable, and in such a situation that when charged with the highest load of the balance, the centre of gravity may lie under the central knife-edge, and the balance consequently always maintain a stable equilibrium.

Every balance must indicate the greatest weight which it is intended to carry; and weighing machines for heavier loads must also indicate the smallest practicable weight.

§ 32. *Descriptions of admissible Balances.*

In pursuance of the general regulations of § 31, no lever balances other than those of the following descriptions are declared admissible for verification:—

1. Balances with equal arms.
2. Balances with unequal arms, or steelyards.
3. Weighbridges, or large weighing machines.
4. Balances with scales placed over the beam, or platform balances.

The special conditions required to be complied with in these separate descriptions of balances, are contained in the following paragraphs.

§ 33. *Scale beams with equal Arms.*

The beam of every such balance must not show a perceptible difference as regards the form of the two arms.

It must be connected with a straight tongue pointing either upwards or downwards; the middle line of the tongue must not perceptibly deviate from a direction rectangular to the straight line between the two end knife-edges, and must when prolonged, pass through the edge of the middle knife-edge.

The beam must, as regards itself, be in a position of equilibrium, and return into this position after having been put into vibration.

Lastly, the arms must be equal, such deviation only being allowed as is represented by the allowance specified in § 38, with respect to sensitiveness.

The amount of the greatest weight which the balance is capable of bearing upon one side must be marked in kilogramms or pounds, either immediately upon the beam or upon a copper or brass stud inserted into it, sufficiently large for being stamped; in the case of larger weighbridges the smallest weight that can be weighed must also be marked.

Special notice must be given to the verifying office whenever the balance is intended to serve as a balance of precision, greater accuracy being requisite for such balances.

The scales belonging to a beam, which scales, it is to be observed, are not to be stamped, together with the chains, cords, or rods, serving for their suspension, must be of equal weight, without any additional adjusting material, such as wire, lead, &c. being used.

§ 34. *Lever Balances with unequal Arms, or Steelyards.*

(A.) With lever-arms of fixed and unalterable proportions:

In regard to accuracy and rigidity of beam, position of the tongue, position and condition of the knife-edges, these balances must fulfil the same special conditions as steelyards with equal arms. The proportion of the lever arms must be as 1 to 10.

(B.) With variable proportion of the lever-arms or steelyards:

These balances have the axis of the beam resting in a fork in which the tongue plays freely; the short arm is provided with a steel knife-edge, to its point of suspension there is attached either a hook or a pan for receiving the charge to be weighed; on the long arm, marked with one or two graduated scales, a collar with two knife-edges is fitted to slide along, from which the traversing weight is suspended, being securely attached to it.

The graduated scales may be marked as kilogramms or as pounds, and their defining lines must denote the legal denominations of weights, and be at equal distance from each other, each distance not less than three millimeters; the figures inscribed upon them must express the multiples or units of each legal weight, any fractions being left without designation. The collar must be constructed so that the requisite inscription upon the beam can be distinctly read.

If there be a loose pan, its weight, including chains, ring or hook, and other appendages, must amount to that of an entire unit of the graduated scale, and this number must be marked upon the front side of the collar with deep letters either in kilogramms or pounds.

The traversing weight must be securely attached to the collar. If the collar be constructed so that it can be taken off, its weight together with that of the traversing weight and other appendages, no other adjusting material being allowed, must amount to an entire unit of the graduated scale, which number must be marked with the addition of kilogramms or pounds, in deep letters upon the front side of the collar.

If the beam has two graduated scales, in which case, it must be provided with either two forks and one point of suspension, or one fork and two points of suspension, the conditions of accuracy must be observed with reference to each scale; if the collar is removeable, it must only bear *one* mark serving for both scales.

A special specification of the greatest weight they are capable of bearing, is not required in the case of these balances, as this is shown by the graduated scale; the latter, however, must indicate whether kilogramms or pounds are meant.

§ 35. *Weighbridges, or large Weighing Machines.*

The principle of these weighing instruments is that the support of the load to be weighed consists of a platform, or kind of bridge, resting upon levers, the long arms of which are attached by connecting rods either directly (in weighbridges in which the weight used is in the proportion of 1 to 10 of the load) or by means of a second lever (in weighbridges with the weight in the proportion of 1 to 100), with the load end of a balance beam placed in position above it, the weight scale being suspended from the other end of the beam.

Weighbridges, commonly known as *Strasburg* weighing machines, or of similar construction, are admissible for verification if in all material respects they are in accordance with the principle above described, provided—

That the proportion of the weight to the load is either as 1 to 10, or 1 to 100;

That the balance does not show a different result when the *same* load is placed on different parts of the platform;

That, in the case of weighing machines moveable from one place to another, requisite arrangements be made for securing the horizontal position of the beam; for instance, by means of a pendulum-indicator attached to the vertical connecting rod, with a proper defining mark;

That an arrangement exists by means of which the weight of all the parts can be so adjusted as to allow the tongue of the balance, when the latter is not charged, to be brought into an upright position.

The centesimal weighbridge must be provided with an inscription to this effect.

§ 36. *Balances with Pans placed above the Beam, or Platform Balances.*

These balances have the weight and the load pans, or platforms, placed above the bearings and in a horizontal position near one another.

They are admissible only—

When they exhibit no difference in the result of the weighing, if the weight or the load is shifted to different parts of their pans or platforms;

When even under the most unfavourable position of the weight or the load on the respective pans or platforms, they continue to show a sensibility within the prescribed limits;

When in a position not quite horizontal, they do not give a wrong indication.

§ 37. *Weighing Instruments not admissible for Verification.*

No balances or weighing machines are admissible for verification and stamping which are not in accordance with the above conditions, and more particularly—

All balances with wooden balance beams;

Appendix XI.—*continued.*

All lever balances in which not only the axis but the suspending eyes or hooks do not form part of the levers;

All lever balances which have not the edge of the middle knife-edge of the lever beam placed on that side of the plane connecting the two end knife-edges, which is opposite to the direction of the greatest force;

Balances with equal arms, having moveable central axis;

Steelyards with unequal arms, the traversing weight of which is not attached to a moveable socket, but is suspended by a hook from the balance-beam itself;

Weighbridges or platform balances, as to which a change of position of the weight or load causes such friction or resistance as affects the prescribed sensibility of the balance.

§ 38. *Mode of Verification and allowance for Errors.*

In the verification of balances and weighing machines, the accuracy, sensibility, and limit of load must be ascertained by the mode prescribed in the special instructions, and they are not to be stamped unless the balance bearing the maximum load shows a distinctly perceptible turn of the scale, when a weight is added on one side not exceeding the following proportions:—

—	Weight added.	
	Absolute Quantity.	Proportionate turn of the Scale.
1. *In the case of Ordinary Trade Balances and Weighing Machines:*		
a. Balances with equal arms, capable of bearing more than 5 K. on one side -	5 D.	$\frac{1}{2000}$
Balances with equal arms, capable of bearing 5 K. and less - - -	1 G.	$\frac{1}{1000}$
b. Steelyards or balances with unequal arms - -	1 G.	$\frac{1}{1000}$
c. Weighbridges, or large weighing machines -	6 D.	$\frac{1}{166}$
d. Balances with pans over the beam, or platform balances	as under *a.*	
2. *Balances of Precision and Medicinal Balances:*		
Capable of bearing more than 5 K. in each scale, per each kilogramm of load.	1 D.	$\frac{1}{10000}$
Capable of bearing more than 250 G. up to 5 K. per each kilogramm of load.	2 D.	$\frac{1}{5000}$
Capable of bearing more than 20 G. up to 250 G. per each 10 gramm of load.	5 M.	$\frac{1}{2000}$
Capable of bearing 20 G. and less per each 1 gramm of load:		
In the case of precision balances -	1 M.	$\frac{1}{1000}$
„ medicinal balances -	2 M.	$\frac{1}{500}$

(per each kilogramm of load.)

§ 39. *Stamping.*

Scale-beams with equal arms are stamped either in the middle or on each arm; at any rate at such a place where the stamping can be effected without injury to the beam; in the case of beams with plugs (§ 33) upon the latter.

The beams of balances of precision and medicinal balances must be marked with a star of six rays, in addition to the stamp of verification.

In the case of steelyards, first, the beam must be stamped at the first and last division line of the graduated scales; secondly, the moveable collar twice, close to the mark; and thirdly, the part suspended.

In the case of weighing machines, the stamp must be struck or branded upon the arms of the beam, the sides of the lever bearings, and on convenient places of the bridge or pans.

As regards platform balances, the directions given for other balances and weighing machines are to be followed so far as they are applicable.

II.—Alcoholmeters and Thermometers belonging to them.

§ 40. *Instruments admissible for Verification.*

The following instruments only will be admitted for testing and stamping:—

(*a.*) Those alcoholmeters made of glass which indicate according to Tralles the amount of alcohol contained in spirituous liquids, by a scale divided into 100 parts; they may show, either the complete scale from 0 to 100, or only a portion of the scale indicating either entire degrees or fractional parts.

(*b.*) Those thermometers the scales of which are marked on paper or opaque glass and are enclosed with the mercury tube in an outer glass tube. The scale of divisions, which should be that of Réaumur, and be designated as such, must be continued for 10° below freezing-point, and at $12^{\circ}\frac{4}{9}$ the scale must be marked with a red line.

(*c.*) Those thermo-alcoholmeters made of glass, of which the quicksilver bulb of the thermometer belonging to it (which must be in conformity with the above conditions) is in itself a sufficient weight for the alcoholmeter, without any further weight being required. The external diameter of the quicksilver bulb, which may be either spherical or cylindrical, must not exceed 13 mm.

Such alcoholmeters of metal and of glass are not admissible for testing, which besides the Tralles scale exhibit also any other scale of per-centage or reduction scale differing from that of Tralles.

§ 41. *Mode of verification, and allowance for Errors.*

In testing these instruments the mode laid down in the special instruction must be followed, and only those instruments are allowed to be stamped, the division scale of which does not show a greater deviation than $\frac{1}{4}^{\circ}$ as compared with the standard.

Alcoholmeters and thermo-alcoholmeters are to be stamped upon the paper scale which must exhibit the name and address of the maker and the declaration that the scale is divided according to Tralles, the weight in milligramms having been previously marked upon the scale by the verifying office; in the case of thermometers with paper scales, the latter must also be stamped, and those with their scale marked upon the glass, must have the stamp impressed upon paper and fixed upon the glass by an adhesive material.

§ 42. *Certificate of Verification; Tables of Reductions, and directions for use.*

A certificate of verification, and a copy of Tables of reduction, together with directions for their use, will be delivered with each alcoholmeter and thermo-alcoholmeter.

The certificate is to contain the name of the manufacturing firm, the date of examination, the current number, the extent of the scale, the weight of the instrument, and the stamp of the verifying office.

A new certificate of verification in lieu of a lost one, can only be delivered upon a fresh examination of the instrument, and a new table of reduction only on exhibiting the certificate of verification.

III.—Gas Meters.

§ 43. *Gas Meters admissible for Verification.*

The following gas meters only are admissible for verification and stamping: those which indicate the volume of gas in cubic meters; wet gas meters, which effect the measurement of gas by means of a revolving drum of metallic plate, partly immersed in water or other liquid; dry gas meters, which act by means of dry chambers with collapsible sides; and those which when so constructed, admit of a sure measurement of their requisite accuracy.

§ 44. *Mode of Construction of Gas Meters.*

It consequently follows,—

(*a.*) *As to Wet Gas Meters.*

That the drum which revolves round a horizontal axis must not be accessible without injuring the stamp applied after verification, and must be enclosed in a gas-tight vessel which serves for holding both gas and liquids.

The largest possible cubic capacity, which should be invariable, must be given to the upper part of the drum above the surface of the water which is to contain the gas, by enabling this water level, which forms the base of the measure of capacity to be kept constant, not only generally, but also as regards its position with respect to the axis of the drum.

Lastly, the extremities of the feet of the gas meter must be in a level plane so that when applied to practical use the same position may be given to it which it occupied whilst being tested upon a horizontal plane.

(*b.*) *As to Dry Gas Meters.*

That the measuring chambers and valves must be enclosed by a gas-tight cover; and that they must have their diaphragms perfectly gas tight, and to move freely, and

Appendix XI.—*continued.*

these must be so constructed as not to allow any bubbles of water to form and alter the measuring capacity. As to (*a*) and (*b*) in the case of wet as well as dry gas meters, the total measuring capacity (that is to say) of the drum or the dry chambers respectively, must, under a gas pressure equal to a column of water of the weight of 40 mm., be in such proportion to a cubic meter, that this proportion be accurately noted by the registering apparatus.

§ 45. *Apparatus for Registering Measurements.*

The registering apparatus must be so constructed and arranged as not to be accessible without injuring the stamp applied after verification. Each dial must only contain the numbers which show the quantity of gas measured, in cubic meters. It is, however, permitted to register smaller volumes than the cubic meter, either by fractional parts of this measure of capacity, or by liters, which must then be designated upon the dials by these fractions or by the letter L.

§ 46. *Inscriptions on Gas Meters.*

Each gas meter must bear the following inscriptions, so that they cannot be separated from it:—

The name and address of the maker;

The current number of the maker;

The amount of measuring capacity (*Inhalt*) in liters, in the form, I= . . . L.;

The largest volume of gas which it is intended to pass per hour in cubic meters, in the form, V= . . . Cub. Met.

It must appear upon the registering apparatus that it notes the quantity passed in cubic meters.

§ 47. *Mode of verifying Gas Meters and allowance for Errors.*

Gas meters must be tested in conformity with the directions contained in the special Instruction, and they must be stamped only when the ascertained volume does not differ from that noted by the registering apparatus to a greater extent than two per cent., either more or less.

§ 48. *Stamping.*

The certificate of verification is to be effected by the stamp being struck or impressed several times upon the gas meter, in such a manner that the parts of which the enclosing cover consists cannot be separated, nor the registering apparatus opened, nor the tablet, if it should bear the marks specified in § 46, separated without injuring the stamp.

In the case of wet gas meters which are to be provided with means by which the level of the water can be altered from without, this arrangement must be of such a kind, and be so secured by soldering and stamping or by stamped plumbing, that when the alteration of the level has been effected, no further change of the water level can afterwards be made.

PART III.

STANDARDS.

§ 49. *Descriptions of Standards.*

Standards are of the following descriptions:—

I. *Local Standards of Verification*, viz.:—

(*a.*) Working standards used for determining the correctness of commercial weights and measures at the verification offices.

(*b.*) *Local Standards of reference*, to serve for rectifying the working standards used by the verifying officers.

II. *Principal Standards* used by the superior officers who supervise the verifying offices, for regulating the local standards of reference.

III. *Copies of the Primary Standards of Measure and Weight* used in the construction and rectification of the principal official standards.

I. (*a.*) Local Working Standards for the Verification of Commercial Weights and Measures.

§ 50. *General Regulations.*

Every verification office must be furnished for each branch of standards business which it is to execute, with the working standards hereafter specified.

These standards must not, with respect to material, form, denomination marked upon them, and other requisites, differ unfavourably from the similar weights and measures permitted in trade, and must be marked by stamps with two stars; and as regards Standard Weights and Measures of precision, by stamps with three stars.

They may be constructed at the verification office where they are to be used, if the means for constructing them exist, or else they are to be furnished by the superintending authority. But the working standards for dry measures of capacity of $\frac{1}{2}$ H., must in all cases be furnished by the superintending office, because, according to § 58. no standards of reference are provided for these measures, on which account it is so much the more requisite that these standards should be uniformly constructed, and of the best workmanship. The verification office is responsible for constantly maintaining the working standards in exact agreement with the standards of reference.

§ 51. *Local Working Standards for Measures of Length.*

A line standard metre of brass, divided throughout into centimeters, and having one decimeter subdivided into millimeters.

A wooden measure, square in lateral section, 16 to 20 mm. thick, being 1 meter long, divided into millimeters.

A similar measure 2 meters long, and 20 to 25 mm. thick, divided into centimeters.

An end measuring bar of steel of a meter, divided into centimeters.

A ribbon measure of steel, 20 meters long, divided into decimeters.

These working standards must not deviate from the standards of reference, or from the ascertained length of standards of reference, to a greater extent than at most two-fifths of the deviation specified in § 3, and any deviation exceeding this allowance will render the measure unfit for stamping.

§ 52. *Local Working Standards for Liquid Measures of Capacity.*

A set of liquid measures from 2 L. to $\frac{1}{32}$ L., and 0·2 L. to 0·02 L., according to the scale specified in § 5. of hammered copper-plate, hard-soldered, with strengthened and polished rims, and ground glass discs with plane surfaces belonging to them.

Or a set of glass measures (Eichkolben), with narrow cylindrical necks of the same denominations, each of which is provided about the middle of the neck with a mark for the water level at its right height, and above and below it must be also marked the greatest deviation allowed by § 11. in its measuring capacity.

These working standards must not deviate from the respective standards of reference, or, provided they have been properly adjusted by weighing their contents of water, from their legal capacity, to a greater extent than at most two-fifths of the deviation allowed by § 11.

§ 53. *Local Working Standards for Dry Measures of Capacity.*

A set of dry measures of capacity from $\frac{1}{2}$ H. to $\frac{1}{16}$ L., according to the list specified in § 14., those from $\frac{1}{2}$ H. to 2 L. being of sufficiently strong tinned sheet-iron, and the smaller ones of hammered copper-plate, hard-soldered, strengthened with polished rim, and having ground glass discs with plane surfaces belonging to them.

A set of small tolerance glasses, for measuring the quantities allowed by § 20, as errors of each measure.

With regard to the accuracy of these working standards, the same regulations apply as those given for the limits of error in § 52, those in § 20 being applicable to metallic measures of capacity.

§ 54. *Local Working Standard Weights.*

(*a.*) *Weights of Precision.*

A set of standard weights from 50 K. to 1 M. of the denominations specified in § 22 of such accuracy that each weight from 50 K. to 1 M. does not deviate from the respective standard of reference to a greater extent than two-fifths of the deviation allowed by § 28 in the verification of weights of precision.

Two sets of tolerance weights made of German silver, in the form of small quadrangular plates, the larger weights with knobs, the smaller with the rim bent up, arranged in a separate case, with a small pincer; each of such of these weights as are specified in column two of § 28, from 25 D. down to 1 m., so far as its size admits, is to be marked with the stated denomination of the weight, the allowance of error of which it represents, and to be also marked with a star with six rays; each must also not exhibit a greater error than that allowed by § 28 for its weight as a weight of precision.

Appendix XI.—*continued.*

The reason why two equal sets of these tolerance weights have been here prescribed, is that by employing two equal weights of both sets, those deviations may be easily detected, which a commercial weight is not allowed to exceed.

(*b.*) *For verifying Medicinal Weights.*

In case a verifying office should not be fully provided with the apparatus for comparing weights of precision, the standard weights indicated under (*a*) from 200 G. downwards will be sufficient for the verification of medicinal weights.

(*c.*) *For verifying Ordinary Trade Weights.*

A set of standard weights from 50 K. to 1 M., which must not deviate from the respective standards of reference, to a greater extent than at most two-fifths of the limit of error allowed by § 28 on the testing of commercial weights.

Two sets of tolerance weights of brass, from 5 G. to 2 C. made in the same way as those mentioned under (*a*), except that the single weights are allowed an error not exceeding that tolerated in the denomination of commercial weights, which corresponds in weight with such tolerance weight.

I. (*b.*)—Local Standards of Reference.

§ 55. *General Regulations.*

Every verification office must be provided with local Standards of reference, required for the correction of their working standards.

The weights of the several units must be generally similar in form and in the denomination marked upon them, to weights of the same denomination intended for trade purposes, and must in respect of material and construction be in conformity with the following regulations. These standards of reference are not to be stamped, but the authorised officer or person who has constructed and verified them, is to deliver a certificate to the effect that they are correct within the limits of error hereafter specified.

The standards of reference are to be arranged together either singly, or in appropriate sets, and placed in cases capable of being locked and bearing an escutcheon with the inscription "Controlnormale," together with a list of the contents, bearing the stamp of the office which has delivered the certificate of verification.

In addition to the Standards Commission of the Confederation, those superintending offices which possess principal standards and are provided with the necessary appliances are authorised to construct and to verify the local standards of reference.

The superintending offices are charged with the duty of maintaining the local standards of reference duly correct, each superintending office as regards the verification offices of its district.

§ 56. *Local Standards of Reference for Measures of Length.*

A line standard measure of brass of one meter divided throughout into centimeters and having one entire decimeter subdivided into millimeters.

An end standard measure of steel 2 meters long, divided in like manner.

The deviation from the standard length must not exceed 0·02 mm. as regards the former, and 0·1 mm. as regards the latter standard measure.

§ 57. *Local Standards of Reference for Liquid Measures of Capacity.*

A set of standard liquid measures from 2 L. to $\frac{1}{32}$ L., and from 0·2 L. to 0·02 L., made either of hammered copper plate, hard soldered, or of drawn brass tubes with the bottom soldered in and strengthened, rim with ground plane surface, and glass disc belonging thereto.

The deviation of each single measure from its standard capacity must not exceed one-tenth of the error allowed in verifications by § 11.

§ 58. *Local Standards of Reference for Dry Measures of Capacity.*

A set of standard dry measures from $\frac{1}{4}$ H. to 5 L. of hammered sheet copper, hard soldered, with the bottom soldered in and strengthened, rim with ground plane surface, and the glass discs belonging thereto; the standards of reference mentioned in § 57 are to be used for regulating the smaller working standards of dry measure.

The error of each single measure from its standard capacity must not exceed one-tenth of the deviation allowed by § 20 in the verification of metallic dry measures of capacity.

§ 59. *Local Standard Weights for Reference.*

Six of the larger kilogramm weights made of brass of 20, 20, 10, 5, 2, 1 K., are to be provided for the verification offices, which are to be completely equipped for the verification of weights of precision; as regards the other verification offices these weights are to be of cast-iron, with brass plugs.

Ten gilt brass gramm weights of 500, 200, 100, 50, 20, 10, 5, 2, 1, 1 g.

Ten platinum milligramm weights of 500, 200, 100, 50, 20, 10, 5, 2, 1, 1 m.

The deviation from the standard of any one of these standard weights must not exceed one-tenth of the error allowed in the verification of weights of precision of the same denomination.

II.—Principal Standards.

§ 60. *General Regulations.*

In order to regulate the local standards of reference belonging to the verification offices of its district, every superintending office must possess the principal standards hereafter specified.

With regard to form, designation, verification, and preservation in separate cases with the superscription "Hauptnormale" (*Principal Standards*), the same regulations are applicable as are given for the local standards of reference (*see* § 55), except that in each certificate of verification the amount must also be stated for each standard weight and measure of its deviation from the standard.

The principal standards are also to be provided with some special mark guaranteeing their identity with those specified in the certificate of verification.

The deviation from the standard must in no case be greater than that allowed by the preceding regulation for the corresponding local standard of reference.

Besides the Standards Commission of the Confederation only those superintending officers who possess verified copies of the primary standards of measure and weight, and are provided with other requisite appliances, are authorised to construct and to verify principal standards.

A copy of every such certificate of verification granted by them must be forwarded by the superintending officers to the Standards Commission of the Confederation.

A comparison of the principal standards, with a view to the due maintenance of their accuracy, must be made from time to time by the Standards Commission of the Confederation.

§ 61. *Principal Standard Measure of Length.*

A line standard measure of brass of one meter divided throughout into centimeters and having one decimeter subdivided into millimeters.

§ 62. *Principal Standard Measures of Capacity.*

Standard liter measures of 2, 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$ L., made of rolled brass, with the rim strengthened and ground to a true plane, and the bottom soldered on.

Standard measures of 0·2, 0·1, 0·05, and 0·02 L. also of brass or bronze, all constructed in the forms of liquid measures, with the requisite ground glass discs.

For dry measures of capacity, no principal standards are provided, as the larger local standard measures of reference are to be verified by the weight of their contents of water, and for the smaller dry measures, the principal standards for liquid measures may be used.

§ 63. *Principal Standard Weights.*

The standard weights from 20 K. to 1 g. are to be of gilt brass, and from 500 m. to 1 m. of platinum, according to the scale specified in § 59, except that there is to be only one standard weight of 20 K.

III.—Copies of Primary Standards of Measure and Weight.

§ 64. *General Regulation.*

Copies of the primary standard measure and the primary standard weight will be furnished by the Standards Commission of the Confederation to those superior officers superintending the verification offices who may wish to obtain them.

They must be accompanied by a certificate of verification stating the method observed at the comparison, and the ascertained deviation from the original with which they were compared; and they must be placed in cases capable of being locked, upon the escutcheon of which the stamp of verification, a description of the contents, the current number, and the year of construction, must be marked.

Appendix XI.—*continued.*

§ 65. *Copies of Primary Standard Measure of Length.*

Copies of the primary standard measure of length, mentioned in Art. 2 of the law of 13 June 1868, for regulating weights and measures, are for the purpose in question to be constructed in the shape of a line standard measure on a brass bar, 25^{mm} square, in lateral section, into which silver studs must be inserted for the purpose of marking the two lines defining the length of the meter, which lines must be drawn in a plane which is through the axis of the bar. The bar is to be marked with a number, but without subdivisions.

In addition to the several details of the comparison, the respective certificates of verification must state the temperature at which the deviation found to exist between the original and the copy was observed.

§ 66. *Copies of Primary Standard Weight.*

Copies of the primary standard weight, mentioned in Art. 5 of the law of 13 June 1868, must be constructed of gilt brass, of cylindrical shape with a knob, and the number must be marked upon the standard weight; the certificate of verification is to be accompanied by a copy of the note of the weighings, together with the calculations requisite for the reduction to a vacuum, and the result of these reductions.

PART IV.

OTHER APPARATUS OF VERIFICATION OFFICES AND SUPERVISING OFFICERS.

I.—Balances.

§ 67. *Balances for Verification Offices.*

For the purpose of verifying weights and its other duties, every verifying office must be provided with the proper balances, having beams with equal arms and of sufficient sensibility.

These are as follows:—

Five balances for verifying *weights of precision.*

No.	Limits of Weight to be carried in each Pan.	When weighted with	To turn with an additional Weight of
1	50 K. to more than 5 K.	50 K. 10 K.	1 G. 5 D.
2	5 K. „ 500 G.	5 K. 1 K.	25 C. 8 C.
3	500 G. „ 50 G.	500 G. 100 G.	5 C. 12 M.
4	50 G. „ 5 G.	50 G. 10 G.	10 M. 4 M.
5	5 G. and less - -	5 G. 1 G.	2·4 M. 0·8 M.

For verifying *commercial weights* the balances No. 1–4 will suffice.

For the verification of *medicinal weights* the balances No. 3–5 will be available.

§ 68. *Balances for supervising Officers.*

For the comparison of the local standards of reference with the principal standards, the superior officers who have to supervise the verification offices must be provided with five balances of the same description as those specified in § 67, the sensibility of which however must be at least five times greater than is there stated.

II.—Other Auxiliary and Supplementary Standard Apparatus.

§ 69. *Auxiliary Instruments.*

All offices of verification must be provided, so far as regards the particular branches of the business of verification which they have to perform, with such auxiliary instruments and apparatus as may be necessary for carrying out the work of verification, as pointed out in the instructions, viz.:—

For verifying measures of length:
Vernier, magnifying glass or microscope, beam compasses, backed square, &c.
For verifying liquid measures of capacity:
Horizontal plane to stand them upon, spirit level, &c.
For verifying dry measures of capacity:
Filling apparatus for millet or rapesced, wooden strike, &c.
For verifying weights:
Counterpoise weights, pincers, and forks for taking up the standard weights, &c.
For verifying balances:
Beam stand or tripod, suspending weights, &c.

§ 70. *Supplementary Standard Apparatus.*

Various instruments to serve as supplementary to the standards must be supplied according to the detailed directions contained in the instructions, and to be made use of in the verifying offices only when previously examined, and approved by the supervising officers, viz.:—

An instrument for testing the accuracy of wooden measures of length.

Instruments for measuring large quantities of liquids by their cubic capacity.

An instrument for determining the capacity of casks through the weight of the water contained therein, by means of a decimal balance.

Tables for ascertaining the capacity of dry measures by the weight of the water contained in them, for the preparation of which the standard numbers to be furnished by the Standards Commission of the Confederation are to be used.

Instruments for verifying gas meters.

§ 71. *Standard Instruments for testing Alcoholmeters, and Thermometers belonging to them.*

For testing alcoholmeters and thermometers, only the standard instruments made by the Standards Commission of the Confederation are to be used.

Every verification office charged with these testings, must be provided with a working standard and standard of reference for this purpose, and every supervising officer is to have a principal standard. All instruments of this description are to contain the standard scale divided into quarters of degrees.

III.—Stamps and Seals.

§ 72. *General Mark of the Confederation.*

The general stamp mark, mentioned in Art. 19 of the weights and measures law of 13 June 1868, is to consist of a twisted ribbon with the inscription N. D. B.

§ 73. *Stamp of the Standards Commission.*

The stamp of the Standards Commission of the Confederation must exhibit also, both above and below the ribbon, the star with six rays, as the mark of precision, together with the circumscription, Bundes Normal-Eichungs Kommission.

§ 74. *Stamp of the Supervising Officers.*

Every office of supervision over the verification offices is to be distinguished by a special registered number, and these numbers are to follow in such order that after the supervising districts of the Kingdom of Prussia, those of the other confederated states succeed each other, as far as possible, in the order of succession stated in the constitution of the North-German Confederation.

Every supervising office is to have upon its stamp, *over* the general mark (§ 72), the number belonging to it, and the six-rayed star is to be placed *under* the general mark.

§ 75. *Stamp of the Verification Offices.*

Every verification office is to have upon its stamp, *over* the general mark, the number of the supervising officer, under which it is placed, and *under* the mark, the number of the district given to the verification office by the supervising officer.

§ 76. *Public notification of the Stamp Marks.*

The Standards Commission of the Confederation is to publish a list of all the verification offices of the North German Confederation, specifying also the stamps assigned to each.

§ 77. *Seals and Coloured Stamps.*

The seals and larger coloured stamps of the supervising officers, and the verification offices are to contain, in addition to the above-mentioned stamp marks, a circumscription stating the respective name and place of each of them.

§ 78. *Number of Stamps required for Verification Offices.*

In order to complete the work of verification, the several verification offices must be provided with the following

Appendix XI.—*continued.*

stamps, or as many as may be required for the extent of their business :—

1. Five deeply engraved circular stamps, of 18—7 millimeters diameter, containing the full mark of the verification office, to be used upon the the lead plugs of iron weights, viz. :—
   Two with the surface hollowed, for spherical weights.
   Three with plane surface.
2. Four stamps with sharp-edged contours, of 10—2 millimeters diameter for copper, and brass, plugs, weights of other metals than iron, balances, metallic measures of length and capacity, and gas meters, the larger ones must contain the full stamp, the smallest at least the general mark (§ 72).
3. Two stamps of three millimeters and one millimeter, containing the mark in relief of the six-rayed star.
4. Two stamps of 15 and 7 millimeters diameter, containing the full designation, for impressing wooden objects.
5. Three stamps from 50 to 25 millimeters with full designation for branding.
6. A dry stamp with full designation from 6 to 8 millimeters for paper scales.
7. Two sets of number stamps, with a comma, for impressing.
8. Four sets of number stamps, with a comma, for branding.
9. Branding stamp containing the letters H and L, the latter in three different sizes.

PART V.

BUSINESS OF THE VERIFICATION OFFICES.

§ 79. *Original Verification and Stamping of new Weights, &c.*

It is the business of every verification office, in conformity with the directions contained in this regulation, to test the accuracy of all new instruments presented to them for verification, without regard to the place from whence they come, provided that the verification falls within the scope of their duties, and that the instruments are admissible in accordance with the established conditions, and then to stamp those only which do not exhibit greater deviation from the standard than is allowed.

§ 80. *Adjustment of Weights, &c. found defective.*

As to the instruments which, on being tested, are found to be not sufficiently accurate to be stamped, the verification offices are bound to make such adjustments as may be necessary for bringing them within the deviations allowed in trade, so far as the office may possess the requisite appliances.

Any further work of adjustment is to be left, so long as no other directions are issued in this respect, to the private arrangements of the parties interested.

§ 81. *Re-verification of Weights, &c. in use for Trade Purposes.*

Every verification office is bound on application to re-verify and re-stamp all those instruments used for trade purposes, and which consequently already bear the stamp of verification, the testing of which falls within its province, either as to their accuracy, under the terms of this regulation, for their re-verification, or as to the extreme limits of deviation from absolute accuracy which are allowed in such instruments for trade purposes, in pursuance of the provisions of Article 10 of the weights and measures law of 17th August 1868.

If the instrument is found on revision to have a less deviation than the greatest deviation admissible in trade, and if its former stamp is still sufficiently recognisable, the same may be at once given back as legal; if, on the contrary, the old stamp is no longer recognisable, or the instrument is on account of its incorrectness no longer admissible for trade, it must either be adjusted under the terms of § 80 of these regulations before being re-stamped, or it must be marked as unfit for trade, which is to be done by cancelling its former verification mark.

§ 82. *Fees of Verification.*

The verification offices are to receive for the work of verification performed by them the fees fixed in the tariff. They are also authorised to charge for any extra expenses incurred by them for material. All modifications of the fees specified in the tariff, besides those here allowed under special circumstances, are absolutely prohibited.

§ 83. *Certificates of Verification and Special Certificates.*

The verification offices are bound to deliver certificates of verification or special certificates of the results of the examinations made by them, which certificates must contain also a receipt for fees and expenses.

§ 84. *Extraordinary business of Verification.*

According to Article 18 of the measures and weights law, the Standards Commission of the Confederation has to decide as to the admissibility of other instruments for verification and stamping.

It will be the duty of the supervising officers of those districts in which it may at a future period be desirable, in the interests of public trade, to make special arrangements for any verification and stamping not included in the present regulations, to bring such cases under the notice of the Standards Commission of the Confederation. Upon a decision being given, the respective supervising authorities are to issue the necessary notifications.

§ 85. *Annual Returns of Business transacted.*

Every verification office is to prepare annually a summary of the business performed, according to a form to be issued by the Standards Commission of the Confederation, and to transmit the same to its supervising officer.

PART VI.

TEMPORARY REGULATIONS.

§ 86. *General Directions as to Weights, &c. in Trade use.*

As a proof of the verification of those weights and measures which have been examined by them according to the directions of the preceding regulations, the verification offices will have to be furnished, from 1st January 1870, with the stamps now prescribed. On the other hand, for the verification of instruments examined by them in pursuance of the temporary regulations expiring at the close of the year 1871, they will continue to use the stamps hitherto applied. Such stamps are not to be used any more after 1st January 1872.

§ 87. *Verification of Measures of Length.*

Until the end of the year 1871, it is allowable to verify and stamp for trade purposes measures corresponding in length to the regulations of § 1, even if, in addition to such metric measure, they bear also the measures legally used in the country up to the time mentioned. On the other hand, it is not permitted to verify and stamp measures the total length of which between their defining ends is determined according to the measures hitherto customarily used throughout the country, and which at the same time are in part divided according to the metric system.

§ 88. *Verification of Measures of Capacity.*

Measures of capacity constructed according to the regulations hitherto in force will, after having been converted into measures of the new system, be admitted for verification until the end of the year 1871, even if their diameter deviates from the prescribed diameter to a greater extent than the amounts allowed by §§ 8 and 17; such deviation, however, is not to exceed the double of the deviation hereafter to be allowed, and the measures must bear the designations here prescribed.

§ 89. *Verification of Weights.*

Weights in actual use for trade purposes, the denominations and names marked upon which are in conformity with the general provisions of the new weights and measures law, provided they have been duly verified and stamped in accordance with the regulations till now in force, will, even if not in strict accordance with §§ 22, 23, 25, and 26 of the present regulations, as regards their dimensions, designation, form, and other conditions, be permitted to be used in public trade within the country the stamp of which they bear, even after 1st January 1872. But in order to be admitted throughout the whole territory of the Confederation, they must submit to a new revision, and be certified by the verification stamp of the Confederation; and such certification shall not be refused to them up to 1st January 1872, although they may not be in conformity with the directions of §§ 22, 23, 25, and 26 of the new regulations for verification.

§ 90. *Public notification of Weights of the old system not admissible for trade.*

The Standards Commission of the Confederation will specify by public announcement those weights of the system in force up to the end of the year 1871 in the different states of

Appendix XI.—*continued.*

the Confederation, which in regard to their denominations and names marked upon them are not in accordance with the provisions of the new weights and measures law, and which therefore can no longer be admitted in public trade after 1st January 1872.

§ 91. *Verification of Balances.*

In all cases in which the authority of the verification stamp of the Confederation is desired, the verifying offices are bound to receive for re-verification, even after 1st January 1872, those balances actually used in trade which have been certified according to the regulations in force until the end of the year 1871, as to which, in regard to their future legality for trade purposes, the regulations contained in § 89 for weights are to be equally applicable; provided there are no other objections against their being stamped, and even if they do not exhibit the inscription of the greatest weight they can bear, as prescribed by § 31. In such cases, however, so far as may be practicable, such inscription upon them is to be required.

Balances presented for verification at any time after 1st January 1870, provided they shall be in accordance with the directions of this regulation, may be at once certified by the new stamp.

§ 92. *Verification of Alcoholmeters and Gas Meters.*

In the verification of alcoholmeters at any period after 1st January 1870, the weights to be marked upon the scale, referred to in § 41, must be expressed in milligramms, in accordance with the instructions till now in force.

The verifying offices are authorised to receive for testing and stamping at any period after 1st January 1872, gas meters which register in conformity with the directions contained in these regulations.

Those alcoholmeters and gas meters which shall have been verified and stamped previously to 1st January 1872, according to the regulations until now in force in the different states of the Confederation, will continue to be legally used for trade purposes within the country the stamp of which they bear, after the 1st January 1872.

The certificate of the verification stamp of the Confederation, in regard to both kinds of measuring instruments, is subject to compliance with the requirements of this regulation for verification; gas meters, however, which shall have been duly stamped and in use before 1st January 1872, and in consequence of merely ordinary repairs may require to be re-stamped after this date, will be permitted to be stamped without fulfilling the conditions of §§ 43 to 46.

But whenever they shall have undergone material repair, as to which the Instruction will lay down more detailed directions, such gas meters, previous to being re-stamped, must be re-constructed so as to register according to the metric system.

§ 93. *Continued use of existing Standards for verifying Weights.*

Such offices of verification as are already provided with working standards and standards of reference, which in regard to their denominations and designations are in conformity with the measures and weights law of 17th August 1868, but yet are not in exact accordance with the directions contained in Section III. of these regulations for verification, are permitted to continue in future to use these standards, provided they satisfy the requirements of that section in regard to accuracy.

(Signed) FOERSTER.

The Standards Commission of the
North-German Confederation,
Berlin, 16th July 1869.

PUBLIC NOTIFICATION OF THE EXTREME LIMITS OF ERRORS TOLERATED IN WEIGHTS, MEASURES, AND BALANCES USED IN PUBLIC TRADE, FROM 6TH DECEMBER 1869.

By virtue of the provision contained in Art. 10 of the Weights and Measures Law for the North German Confederation of 17th August 1868 (Collection of Laws, p. 473), the Council of the Confederation (*Bundesrath*) has, after consultation with the Standards Commission, decreed as follows:—

The extreme limits of deviations, either in excess or deficiency, from absolute correctness, tolerated in the measures, weights, and balances used in public trade, any exceeding of which will render any of the hereafter-named instruments illegal, under the terms of Art. 10 of the Weights and Measures Law of 17th August 1868, and unfit for use in public trade, are fixed as follows:—

A. Greatest error admissible in *measures of length.*

2 millimeter in wooden measures of 1 meter length, divided into centimeters only, and intended to be used for measuring wares, as also in folding measures of the same length;

1·5 millimeter, in such measures ½ meter in length;

8·0, 3·0, 1·5 millimeters, in workmen's wooden measures of 5, 2, and 1 meter length respectively;

7·0, 4·5, 3·5, 2·5, 1·5 millimeter, in metallic ribbon measures of 20, 10, 5, 2, 1 meter length respectively;

1·5, 1·0 millimeter in measures made of metal, 2 and 1 meter in length respectively;

0·5 millimeter in similar measures 0·5, 0·2, and 0·1 meter length, as also in measures of such denominations made of hard wood, ivory, and similar materials.

B. Greatest admissible error in *measures of capacity* for liquids and dry commodities, if made (1) of metal, or (2) of wood, expressed in fractional parts of the standard capacity, viz.:—

(1.) Metal.	(2.) Wooden.	Denominations of Measures.
$\frac{1}{250}$	$\frac{1}{125}$	From 1 hektoliter to ¼ hektoliter.
$\frac{1}{200}$	$\frac{1}{100}$	„ 20 liter to 1 liter.
$\frac{1}{100}$	$\frac{1}{50}$	„ 0·5 „ 0·2 „
$\frac{1}{50}$	$\frac{1}{25}$	„ ⅛ „ 0.02 „

Also—

$\frac{1}{160}$ of their capacity, duly branded on casks;

$\frac{1}{50}$ of the capacity of measures for lime, coals, and the like, if larger than those above mentioned under (1) and (2).

C. Greatest admissible error in *weights.*

(1.) In ordinary trade weights:

Error tolerated.	Denomination of Weight.
10 gramm -	50 K.
8 „ -	50 lb. and 20 K.
5 „ -	10 K.
25 decigramm -	5 „
12 „ -	2 „
8 „ -	1 „
5 „ -	500 G. or 1 lb.
25 centigramm -	½ lb.
20 „ -	200 G.
12 „ -	100 „
10 „ -	50 „
6 „ -	20 „
4 „ -	10 „
1 decigramm -	Weights of 5 gramm, two of 2 gramm, and one of 1 gramm, taken together, the error of each of which must not materially exceed its due proportion of the whole error tolerated.

(2.) In weights for weighing of gold, silver, jewels, and pearls (*weights of precision*) as also in *medicinal weights*, both descriptions being marked as such by the stamp of a star with six rays, placed close to the stamp of verification, the greatest admissible error tolerated for weights from 100 pounds to 10 gramm, is only one-half of that allowed for such denominations under C.; the following errors are also allowed:—

12 milligramm in the 5 gramm weight.
6 „ „ 2 „ „
4 „ „ 1 „ „
2 „ „ 5, 2, and 1 decigramm.

And, as regards the smaller weights, for every four taken together which form the next higher unit, one-fiftieth of the weight of such unit, and the error of each single weight is not materially to exceed its due proportion of the total error tolerated.

Appendix XI.—*continued.*

D. Greatest admissible error in *gas meters;* one-fiftieth of the quantity of gas registered by the meter.

E. Greatest admissible error in *alcohol meters;* quarter degree of the scale when compared with the standard instruments constructed by the Standards Commission of the Confederation.

F. The admissibility of a balance depends on the following conditions being fulfilled.

If the balance for the purpose of being tested is weighted on both sides with equal weights representing its greatest weight to be borne, any variation of weight on either side, by which the balance is made to deviate sensibly from its proper testing point, must not exceed the limits hereinafter specified, (the stated amount of which, in the case of balances with unequal arms, or steelyards and weighing machines, is of course only to apply to additions upon the load side, and is to be determined for additions upon the weight side by the special construction of each of these weighing instruments).

1. In ordinary trade balances,—

1 gramm for each kilogramm placed in each pan of balances having scale beams with equal arms, balances with scales above the beam or platform balances, if the greatest weight to be borne exceeds 5 kilogramms.

2 gramms for each kilogramm placed in each pan of balances of the same description, if the greatest weight to be borne amounts to 5 kilogramms or less, as also in balances with unequal arms or steelyards throughout.

12 decigramms for each kilogramm of load in large weighing machines, or weighbridges.

2. In balances for gold, silver, jewels, and pearls (*balances of precision*) as also in *medicinal balances,* both marked as such by the stamp, a star with six rays placed close to the stamp of verification :—

2 decigramms for each kilogramm placed in each pan, if the greatest weight to be borne exceeds 5 kilogramms.

1 milligramm for each gramm placed in each pan, if the greatest weight to be borne amounts to 250 gramms or less and beyond 20 gramms.

2 milligramms for each gramm placed in each pan, if the balance is intended for 20 gramms and less, in weighings of precision.

4 milligramms for each gramm placed in each pan in balances of this last-mentioned capability, intended for medicinal use.

The Chancellor of the
North-German Confederation,
(Signed for) DELBRÜCK.

Berlin, 6th December 1869.

REMARKS UPON THE DEGREE OF ACCURACY REQUIRED BY THE PRECEDING REGULATIONS IN STANDARDS, AND IN WEIGHTS, &c. USED FOR TRADE.

The preceding regulations respecting the extreme limits of deviations from absolute accuracy tolerated in weights and measures used in public trade are based chiefly on the considerations contained in the memorial on the introduction of uniform weights and measures into the States of the North-German Confederation, drawn up by the Frankfort Commission of Experts in the year 1861 (page 53, &c. of the official edition). The propositions therein made, which were founded on the legal provisions of several countries, have been adopted, either completely or with certain modifications deemed expedient.

The regulations respecting the degree of accuracy to be observed at the Verifying offices, and in the deviations from absolute standard accuracy allowed in standards used in the operations of verification, have been framed in close uniformity with the views thus expressed.

It was requisite to provide, that, although the verifying officer might compare the weights and measures intended for trade, as specified in the regulations, with a standard not perfectly correct itself, yet no weight or measure verified in strict accordance with the established regulations should go forth from the hand of the verifier for trade use, which should be actually erroneous to the full extent of the allowance tolerated. The regulations had consequently to be so framed that for each weight and measure originally verified there should remain, even in the most unfavourable case, still a certain latitude of alteration before it could exceed the tolerated deviation from the standard, and thus become unfit for trade use.

The regulations established in accordance with this view are rendered still more complicated by the impossibility existing with regard to a great number of verification offices, of directly comparing each working standard provided for the acting verifier, with the primary standard weight or measure, which comparison on the contrary can be effected only through intermediate means, viz.:

1. Of the standards of reference, with which every verification office is provided for the adjustment of the working standards.
2. Of the principal standards in possession of the superintending authorities, which serve for the adjustment of the standards of reference, but which again can themselves only be adjusted by means of a copy of the primary standard weight or measure.

In respect of none of these several necessary comparisons, can an absolute conformity be attained, but on the contrary some deviation will always exist.

It was requisite, therefore, gradually to reduce the limits of tolerance, as regards the superior standards, within smaller and smaller limits, so that even upon the improbable yet possible contingency of an accumulation of the total errors tolerated, no weights and measures in public trade should be allowed to pass, after comparison with the standards used, with an error exceeding the tolerated deviation from absolute standard accuracy.

These considerations have given rise to the following regulations :—

(*a.*) With regard to copies of the primary standard measure and weight, any ascertained deviation from the standard is to be noted and specified; in all comparisons made with such copies of other standard weights and measures any deviation from the primary standards may thus be determined.

(*b.*) With regard to every principal standard, the ascertained deviation from the standard, that is to say, from the primary standard measure or weight, must be specified, and this deviation must not exceed that allowed for the standard of reference of corresponding denomination.

(*c.*) With regard to every standard of reference, the precise amount of error need not be specified, but it must be certified that the error does not exceed the limit established by the regulations which nearly throughout is fixed at one-twentieth of the tolerance for commercial weights and measures in actual use.

(*d.*) No error is to be allowed in any working standard used by the verifier for testing commercial weights and measures, which amounts at the most to one-fifth of the last-mentioned tolerance.

(*e.*) Comparisons with the working standards of every measure or weight to be authorised for trade use, must, previous to such being certified by stamping, be carried by the verifying officer to such an extent that no greater error remains than one-half of the tolerance in weights and measures actually used for trade purposes.

According to these regulations, the greatest deviation from the standard to be anticipated, even under the contingency of an accumulation of all errors tolerated in any of the weights and measures to be verified, will be found to amount to three-fourths of the maximum tolerance. But it may be presumed that only in few instances will all the errors be on the same side either of excess or deficiency, for which reason also in most cases there will remain for the object verified a much greater latitude of alteration than one-fourth of the tolerance.

This latitude will be still greater in the case of weights, and of wooden measures of capacity used in trade, because as regards the former, the same degree of accuracy is required for the standards of reference as for the weights of precision, and as regards the latter, the standards of reference, as well as the working standards are to possess the higher degree of accuracy of the standards intended for metallic measures of capacity.

It is further to be noticed that the regulation by which the total deviation from the standard of the working standards and standards of reference is not to exceed at the most one-fourth of the trade tolerance, renders it impossible that any weight or measure when originally verified, even under the most unfavourable circumstances, can be found upon being submitted to any other similar test, to exceed the limit tolerated. And in order to produce a still greater certainty, the Instruction makes it incumbent on the verifying officers to take into account in all their comparisons, upon which side either of excess or deficiency, their working standards are found to deviate from the standard.

In regard to balances it is to be observed that it is impossible to carry out the principle of prescribing the same degree of accuracy to them as to the weights to be used with them, because balances when in use for trade purposes

Appendix XI.—*continued.*

are much more easily and sooner affected as regards their accuracy than weights. It is for this reason that the tolerance for balances of precision has been fixed at nearly twice that for weights, and is proportionately still greater for balances intended for trade use.

If it should be inferred from the relative amount of tolerance here pointed out that the degree of accuracy required in weights is too great, because a less degree is allowed in the balances with which they are used, it should be borne in mind on the one hand, that any error in the special weights of a large weighing machine, or weigh-bridge, are of course multiplied; and on the other hand, that any error in weighing is the result of the error of the balance as well as that of the weight taken together. In every case, therefore, it is evidently necessary, in order to secure the greatest certainty in weighing, to diminish in the first instance both these sources of error, as well as to keep them in check, so far as their nature may in any way admit, and as may be attainable without too great a molestation of the trade.

The Standards Commission of the
North-German Confederation.

II.—OFFICIAL INSTRUCTIONS FOR CARRYING OUT THE GENERAL REGULATIONS OF 16TH JULY 1869; ISSUED IN PURSUANCE OF ART. 18 OF THE WEIGHTS AND MEASURES LAW OF 17TH AUGUST 1868, BY THE STANDARDS COMMISSION OF THE NORTH GERMAN CONFEDERATION, AT BERLIN, ON 10TH DECEMBER 1869.

PART I.

General Instructions.

Admissibility for verification.

1. The instruments presented for verification are first to be examined as to their admissibility, in conformity with the provisions of the General Regulations, with respect to material, form, designation, and other conditions, and those found to be inadmissible are to be returned with a declaration of the reason of their inadmissibility.

The Regulations which are to serve for guidance in this respect are as follows:—

For measures of length -	§ 1 and 2	of the General Regulations.
„ liquid measures of capacity - -	§ 5 to 10	„ „
„ casks - -	§ 12	„ „
„ dry measures of capacity - -	§ 14 to 19	„ „
„ weights - -	§ 22 to 27	„ „
„ balances - -	§ 31 to 37	„ „
„ alcoholmeters and thermometers -	§ 40	„ „
„ gas meters - -	§ 43 to 46	„ „

The temporary regulations are contained in §§ 86–93. In the following special Instructions will be found directions for explaining more fully all these Regulations; and at a future period further directions, supplemental to the General Regulations, may be issued by the Standards Commission of the Confederation, and special regulations are to be published by the superintending authorities, in pursuance of § 84 of the General Regulations, relating to extraordinary services of verification.

Temperature of room.

2. The actual testing of the due accuracy of any instruments to be verified must take place in a room at, as nearly as possible, a medium temperature (about 14° R.); and after the objects to be tested and the instruments of comparison shall have nearly adopted the temperature of the room, if they are of such a kidn as to be sensibly affected as regards their dimensions and weight, by alterations of temperature, for instance, measures of length, liquid measures, water, &c.

If there are at hand, as in the case of measures of length, standards of different material, the instruments to be examined must be compared with the standard of the same or a similar material. (See however Instruction I., No. 6.)

Mode of weighing.

3. If the comparison is to be made by means of weighing, a balance must be used the bearing capability of which is greater than the weight of the object to be compared, but it must be previously ascertained whether the balance possesses a degree of sensibility sufficient to show clearly the error to be tolerated in the intended weighing; and the balance itself must be so placed as not to be exposed to the rays of the sun, or to the unequal heating of the arms of the balance beam by a stove, which may soon have an injurious effect on the balance.

Every weighing made by using a balance with equal arms must be effected by counterpoising, and this method is to be preferred whenever it is possible; that is to say, the standard is first to be placed in one pan and the other pan is then to receive the counterpoise; in other words, weights are put in until the balance is in equilibrium, after which the object to be verified is placed in the first pan in lieu of the standard, and is compared with the counterpoise which has been left unchanged.

If several such weighings for the comparison of objects of equal weight take place one after another, it must be ascertained at proper intervals whether the counterpoise continues to be correct.

Conformity with the standard.

4. As it is intended by the verification of weights and measures to furnish instruments for trade use which shall as nearly as possible correspond with the standard of the same denomination, the verifying offices should use every endeavour to secure that the instruments verified agree with the standard, as represented by the several working standards, even more closely than is absolutely required by the provisions of §§ 3, 11, 20, and 28 of the General Regulations in respect of the extreme limits of tolerance.

This appears desirable chiefly for this reason,—any error in relation to the working standard which may be allowed in the object to be verified, as well as any error of the working standard, although restricted within narrower limits, may lie in the same direction, whereby the object to be verified would be erroneous to the extent of the sum of the two errors thus stated.

Accumulated errors.

5. Indeed in the most unfavourable case, that is to say, of an instrument stamped by a verifying office, as to which the full deviation from the working standard may have been allowed in excess, when also the working standard, as well as the standard of reference of the verifying office, may also have been in excess of the standard to the fullest amount allowed, it might happen in the event of this very instrument being brought for re-verification to another verifying office, whose working standard and standard of reference chanced to be deficient to the full amount of error allowed, that it would there be deemed erroneous to the extent of the limit of trade tolerance, whereas in reality the instrument under comparison would remain far within the limit of the greatest error allowed in a working standard, and would therefore still retain a considerable latitude of alteration before becoming unfit for trade use.

To prevent the very improbable occurrence of such cases, it will generally suffice to follow the directions given in No. 4. Thoroughly to carry out in standard comparisons any more stringent regulation respecting the extreme limits of tolerance would, again, give rise to other inconveniences. In consideration, however, of any possible accumulation of errors, it is hereby prescribed that upon the re-verification of a measure or weight of precision that has already been used in trade, it shall be taken into account, when deciding as to the continuance of its legality, whether the working standard used deviates from the standard in excess or in deficiency.

Errors in working standards.

6. In order to be enabled to carry out the provision contained in No. 5, to the effect that the ascertained error of the working standard is to be taken into account, the verification offices will take care that they continually know in which direction their working standards deviate from the standard, or from the corresponding standards of reference.

Correction of working standards.

7. If in the examination of their working standards, the verifying officers find errors which exceed the limits specified under 1*a*. of Section III. of the General Regulations, they must themselves at once rectify the working standards if they possess the necessary implements, or else forward the erroneous standards to their superintending authority for adjustment.

Certificates of verification.

8. With regard to the *certificates* to be delivered by the verifying offices for work done by them, the following directions are to be observed:

A. *Certificates of verification* are to be delivered only for those objects which on examination have been found fit for stamping and have actually been stamped.

The forms to be used for such certificates of verification are annexed to the Instructions.

B. *Return certificates* are to be delivered for objects after their examination—

a. If, not having been previously stamped, they are found to be incorrect to a greater extent than the error tolerated for verification;

Appendix XI.—*continued.*

b. If, having been used in trade, they are found incorrect to a greater extent than the error tolerated for trade use; and, upon this ground, although they may still appear fit in all other respects, they must be pronounced unfit for trade use, and be marked as such, according to § 81 of the General Regulations, by cancelling their former stamp; providing always, in both such cases, that no rectification is made by the verifying office.

The form to be used in these cases is as follows:—

(*a.*) *Return Certificate* (*a. No.*) *for new instruments.*

To Mr. in .

The instruments hereafter specified are herewith returned unstamped, together with an account of examination fees according to the tariff, the said instruments having been found upon examination to be incorrect.

Number of Instruments.	Designation of Instruments.	Examination Fee.		
		Thal.	Sgr.	Pf.

Verification Office in , this 18 .

Stamp.

(*Signature of Chief Verifying Officer.*)

(See also No. 10.)

(*b.*) *Return Certificate* (*b. No.*) *for instruments previously used in trade.*

is to be in a similar form.

C. *Certificates of approval* are delivered—

a. For those instruments which, having been previously stamped and used in trade, have been found on re-verification to be still admissible (see § 81 of the General Regulations);

b. For those instruments the examination of which comes under the head of extraordinary verification work mentioned in § 84 of the General Regulations (for instance, drinking glasses), provided they are found admissible.

The form of a *certificate of approval* under *a.* is as follows:—

For Mr. , in .

The instruments hereafter specified have been examined and found to be still correct within the limit of error tolerated for trade use, and they continue therefore to be legal for purposes of trade. The account of examination fees according to tariff is annexed.

Number of Instruments.	Designation of Instruments.	Examination Fee.		
		Thal.	Sgr.	Pf.

Verification Office at the 18 .

Stamp.

(*Signature of Chief Verifying Officer.*)

9. If several different instruments should be inscribed upon any of the above-mentioned certificates under A., B., and C., those only are to be grouped together which, with regard to their size and description, are of *the same kind*, and which pay the same rate of fees; in such case the certificate must contain as many single lines for the instruments to be inserted as there are collective accounts to be made.

Those certificates of verification which admit of such a mode of proceeding may have inserted after the text a full table of all the instruments, and how chargeable, in which table only the number of instruments dealt with and the actual charge are to be inserted; for example, certificate of verification (V.*a.*) for iron weights:

Number of Weights.	Denomination of Weights.	Fees according to Tariff.								
		Verification.			Adjustment.			Material used.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.
	50 K.									
	50 lb.									
	20 K.									
	10 K.									
	5 K.									
	2 K.									
	1 K.									
	etc.									

In those cases in which the certificate of verification must contain a detailed statement of the construction of the instrument, for instance, in the case of lever balances; or where it is prescribed that the object must be certified for use by the certificate of verification, for instance, in the case of alcoholmeters, a separate certificate of verification must be delivered for each instrument verified.

Form of receipt of fees.

10. Directions are to be issued by the superintending authorities of the verification offices as to the form in which the receipt of the amount of the fees computed is to be acknowledged in the certificates named in No. 8, and in general as to the mode of account by the verification offices.

Annual statement of business.

11. The annual statement of business done, which is prescribed by § 85 of the General Regulations, must be drawn up according to the form annexed to the Instructions.

Registers of verification.

12. In order to obtain a complete view of all the work of verification, and to facilitate the drawing up the annual statement of business, the verifying offices are to establish Registers of verification, into which every certificate must be transcribed in the order of their successive numbers, together with all the information contained in the certificate. These registers will serve as duplicates of the certificates; they must also contain in tabular form all the columns which are to appear in the statement of business.

They must be certified in the same manner as the certificates of verification, (for instance, VI.*a.* to *g.*) and the other certificates.

The registers of the return certificates, *a.* and *b.*, and of the certificates of approval, must observe the same tabular arrangement as those for the verification certificates of the same kind; but in their transcription into the annual statement only the general results are to be included.

The register of the certificates of approval C.*b.*, with respect to extraordinary verification work, must be similar as that for the certificates of verification.

13. All certificates inscribed in any one register must be *numbered*, commencing each year with No. 1, and with current numbers.

PART II.

Special Instructions.

I.—*Instruction for Verifying Measures of Length.*

Practical directions for carrying into effect §§ 1–4 and 87 of the General Regulations.

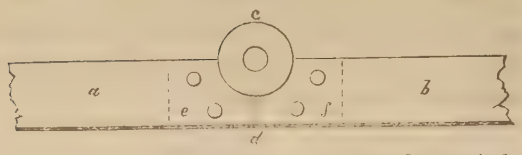
Mode of construction.

1. The following modes of construction may be allowed, in pursuance of § 2 of the General Regulations, for securing that the several moveable parts of a composite measure possess the requisite solidity, when joined together in their relative positions, in order that the standard length of the whole measure may be indicated:

(*a.*) Solid well fitted joints or hinges, *c* (Fig. 1), by which every two moveable parts *a* and *b* are joined together, (whether the turning axis may be upon the narrow or the broad side of each of the parts connected together), so that when the measure is unfolded, the parts which are to come together, only just touch each other as at *d*.

Appendix XI.—*continued.*

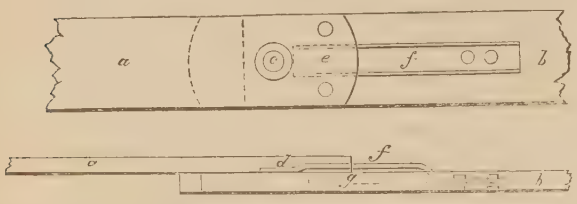
(Fig. 1.)



The two parts of the hinge are to be furnished respectively with overlapping pieces *e* and *f*, which are to be fixed to *a* and *b* by riveting.

(*b.*) Check springs between the two parts of a folding measure which turn upon a solidly constructed metal hinge.

(Fig. 2.)



Here the pivot *c* (fig. 2) unites the two folding parts *a* and *b* of the measure; on the under part of *a* is a thin metal plate *d*, in which there is a flat groove *e*; on *b* is riveted the spring *f*, which immediately catches in the groove *e* whenever the part *b* in turning around *c* comes into a straight line with *a*, and thus secures to *b* a constant position in relation to *a*.

Measures consisting of several moveable parts, so arranged that these parts are preserved in the position representing the standard length of the whole measure, only by the resistance caused by friction, are not admissible for verification.

No measure liable to bend allowed.

2. In examining measures, care is to be taken that they show no curvature, and are not liable to be bent; for the purpose of testing them, they must be placed upon a level plane for their support.

Total length must be correct.

3. Every measure to be verified is first to be tested as to the correctness of its total length, and it is only after it has been found admissible in this respect, that the accuracy of the subdivisions is to be tested. The only exception is to be made in the case of the longer ribbon measures, on account of the necessity of repeatedly and carefully extending them in a straight line.

General method of comparison of subdivisions.

4. In many cases, the comparison with the standard, of the measure to be verified, is to be made in the following manner;—The two measures are to be laid parallel and closely attached to each other by holdfasts, so that the commencing lines of both series of subdivisions fall into one straight line, the accuracy of which may be tested if necessary by means of a backed square. By moving this square from line to line of the several divisions of the standard measure, it will be easily seen whether the subdivision lines of the measure to be verified coincide with those of the standard measure.

Another method.

5. In other cases the following method of comparison may be adopted:—

Place one of the measures in such a way upon the other, that the divided surface of one stands at right angles to the divided surface of the other, and the division lines are reflected upon the surface of each other, the edges of the measures at the same time lying perfectly parallel. Then move one of the measures in such a way towards the other, that the commencing lines of the divisions on both measures coincide with each other, which is to be ascertained by means of a magnifying glass.

It is then to be determined in the same way, whether the other corresponding division lines are coincident, care being taken that the eye of the observer is placed in the plane passing through the division lines under examination, which will be the case when the reflected image of one line falls entirely upon the other, provided they touch each other. In case of any deviation of the two division lines, however small, the eye is to be placed so that the reflected image of one line lies parallel to the division line with which it is to be compared.

6. In the comparison of measures intended for measuring wares with the working standard (§ 51) which is provided with an upright plane at its termination, perpendicular to its length, one end of the measure to be verified is to be placed at the upright termination, and both measures are placed in such a position for the purpose of comparison, that their division lines lie immediately upon one another.

Verification of ribbon measures.

7. When a ribbon measure is to be verified, it must be extended upon a table by means of a suspended weight by which the ribbon is to be brought into a perfectly straight condition, but without being actually stretched. In the case of longer measures of this description, the comparison with the standard must extend to the several separate parts, and for ascertaining the deviation in length of the whole measure, the sum of the errors, if any, of the several parts is to be taken.

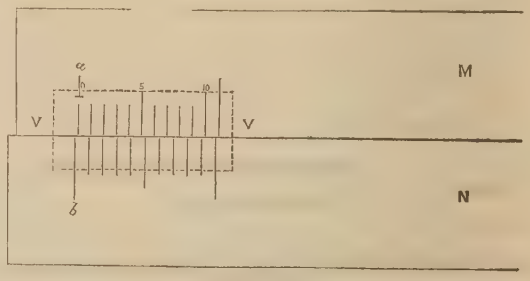
Noting their errors.

8. If errors are found to exist upon any such comparisons being made, they must be noted as to their amount, as nearly as possible by the standard measure, either from estimating the fractions of a millimeter, or by the use of a vernier to be used for more minutely ascertaining such fractions, so that the result may be determined in accordance with the directions of § 3.

Use of vernier.

If, for example, the difference between the termination *a* (fig. 3) of a measure M to be verified, and termination *b* of a standard measure N is to be ascertained within a tenth of a millimeter, a vernier V furnished with an eye piece is to be applied to the two measures when placed close beside one another, the vernier being in fact an auxiliary measuring instrument bearing defining lines, the intermediate spaces of which are smaller or greater than the intermediate spaces of the divisions of the standard, to the extent precisely of that fraction within which the accuracy of the measurement is required to be known.

Fig. 3.



In the above figure, for instance, the intermediate space of the vernier division is supposed to be one-tenth of a millimeter smaller than the intermediate space on the standard measure. Now, if the *o* line of the vernier is placed exactly upon the terminating line of the measure to be verified, which terminating line does not exactly coincide with that of the standard, it will be easily perceived that only one of the lines of the vernier will coincide with one of the lines of the standard. Suppose this to be, as in the above figure, the fourth line of the vernier, it will then be clear that the *o* line of the vernier, consequently also the terminating line of the measure under comparison coinciding with it, is distant from the terminating line of the standard exactly 0·4 millimeter; for the original difference of the two scales will be made up, after four of the intermediate spaces of the vernier are passed, each of them being less by one-tenth of a millimeter.

If the line to be verified be found in the contrary position to that shown in the figure, and upon the other side of the line of the standard, the number of the vernier spaces which must be passed before one of its lines coincides with a line of the standard, must be deducted from 10, in order to ascertain the difference of length between the two lines of the measures compared with each other.

If, lastly, the standard bears at that part of it used for comparison, not subdivisions into millimeters, but only into centimeters, the vernier must contain 10 intermediate spaces, each of which is one-tenth of a millimeter smaller than a centimeter.

As to standard measures altering in length.

9. With regard to working standards for measures of length, no alteration affecting their accuracy is likely to occur, if they are carefully dealt with. In case of material external injury to such a standard, it must be at once replaced.

Stamping.

10. In the stamping of the measures, the directions contained in § 3 of the General Regulations are to be followed.

When the stamps with sharp edges (§ 78) are used upon wooden measures, the stamps are to be coloured.

If it is found impracticable to put the stamp upon the cap and the wood at the same time, the wood must be stamped close to the cap.

Ribbon measures of steel are to be stamped upon small brass plates inserted for the purpose.

Temporary directions.

11. During the period of transition, the directions of § 87 are to be observed.

Form of certificates of verification.

12. The certificates of verification are to be in the following form:—

Appendix XI.—*continued.*

Verification Certificate I., No. , for Measures of Length.

For Mr. at .

The under-mentioned measures of length having been found correct within the deviation allowed, have been verified, and the following fees are charged according to the tariff.

Number of Measures.	Specification of the Measure according to the Description and Length.	Verification Fees according to Tariff.		
		Thal.	Sgr.	Pfs.

Verification office at , the 18 .

(*Signature of Chief Verifying Officer.*)

Stamp.

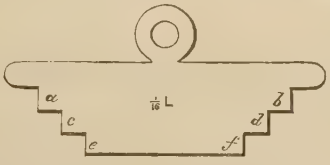
II.—*Instruction for verifying Liquid Measures of Capacity.*

(*See* §§ 5–11, 13, and 88 of the General Regulations.)

Preliminary examination.

1. At the preliminary examination as to the admissibility of the measures presented for verification, gauges may be used for ascertaining whether the diameters of the measures (from 2 L. and downwards) are within the limits prescribed by § 8. The form of gauge is shown in the following figure:—

Fig. 4.



It consists of a plate, say of zinc plate, containing on each side three steplike gradations. The length of *a b*, is in the present case=38 mm., the length *c d* = 36 mm., and the length *e f* = 34 mm. The gauge is named after the denomination of the measure for which it is intended. Now, if the gauge is placed in the opening of the measure, it may easily be ascertained whether its width corresponds to the regulation or not, as *a b* indicates the greatest diameter allowed, and *e f* the smallest, whilst *c d* shows the mean diameter.

Use of glass disc.

2. In the case of measures the upper rim of which forms by its level plane the limit of capacity, the examination whether this rim lies in a plane, as prescribed by the Regulations, is to be made by means of a level glass disc being placed upon it.

Removing air bubbles.

In filling a measure with water, care must be taken that any air bubbles that may adhere to the side of the vessel are removed by tapping the side, or by clearing them with a wire or feather of a quill.

Wetting measures.

3. In pouring water from one vessel into another for the purpose of determining the capacity, care must always be taken that the vessel to be filled be wet; that is to say, it is first to be filled with water and then emptied, and in emptying it the water to be properly drained. The same precaution is to be observed with respect to a funnel when it is made use of for pouring in water.

Methods of comparison.

4. The comparison of liquid measures as to their accurate capacity may be made by the following methods:

(*a.*) By means of standard flasks, or glass vessels with proportionally long and narrow necks. Each bears the designation of the measure for which it is intended, and has defining lines marked upon the neck, the one in the middle indicating the standard capacity of the measure, and the two lines above and below it showing the limits of error allowed both in verification and in trade use.

(*b.*) By means of metal standard measures and the glass discs belonging to them.

(*c.*) By determining the weight of the water that fills the measure.

The method *a* is the most simple for ordinary trade measures up to 5 L.; it requires 12 standard flasks, according to the scale specified in § 5 of the General Regulations, viz., from 0·02 L. to 5 L.

The method *b* may be employed, not only for the testing of ordinary trade measures, but also more particularly for the determination and testing of the just capacity of standard flasks; it is also to be used for comparing the working standard with the standard of reference.

The method *c* serves chiefly for the adjustment of the standards.

The following observations will more minutely explain each of these methods:

Ordinary trade measures.

5. In testing an ordinary trade measure, by means of the standard flask, the measure is to be placed upon a horizontal plane adjusted by a spirit level, and filled with water up to the defined limit of capacity (rim, spout, pin, &c.).

If the several defining limits of capacity do not coincide with the surface of the water, and consequently these defining limits and the base of the measure do not lie in parallel planes, then the measure is to be rejected.

If, on the contrary, the requisite parallelism is found to exist, then the contents of the measure are to be poured off into the standard flask corresponding in denomination with the measure, and from the relative position of the water level and the defining lines of the flask it may be observed whether the measure to be verified is correct, or whether the error, if any, lies within the tolerance.

Again, in examining a 10 L. measure, the standard flask of 5 L. is first to be filled up to its capacity from the measure to be verified, and after having been re-emptied, it is to be filled again with the quantity which was left in the measure; the correctness of the capacity of the measure to be verified within the error tolerated in verification, may then be determined from the two extreme defining lines of the standard flask; for determining the amount of the error to be allowed in trade measures, the standard measure of 0·05 L. may be used, its capacity being equal to the amount tolerated.

If the standard flask of 5 L. be first accurately filled three times in succession from a 20 L. measure, and then the remaining portion of the water poured into this standard flask, the standard measure of 0·05 L. capacity may serve for determining the amount of error to be tolerated in the verification, and the measure of 0·1 L. for the error tolerated in trade use.

Comparison with standard measures and glass discs.

6. In comparisons made with the standard measures and their glass discs, after placing the standard measure upon the horizontal plane, it is then to be filled, and the glass disc slid over, so that no air bubble is left.

After having carefully wiped off the water that may adhere to the external part of the disc and standard measure, the glass plate is gradually to be drawn back, and the contents are to be poured out into the measure to be verified, which should also be placed upon the horizontal plane, having been previously wetted. It must then be ascertained, as pointed out in No. 5, whether the level surface of the water lies parallel with the defining line of the capacity of the measure.

If the measure be found admissible in this respect, though not correct as regards its actual capacity, the water level will lie, if the measure be too large, according to the manner in which its capacity is defined, either below the upper plane of the rim or below the defining pins, &c.; whilst in the case of measures which are too small, a portion of the water will already have overflowed or will stand above the pins.

These two cases are to be differently treated in order to determine the actual amount of error of the measure.

If, for instance, the water level stands below the defining line, the amount of error is to be ascertained either by the mode adopted in the case of measures the exact capacity of which is defined by the plane of the upper rim, viz., by carefully sliding the glass disc over it, and then estimating the amount of error by the size of the air bubble remaining (*see* No. 7). Or by adding the small quantity of water required exactly to fill the measure from a burette (*see* No. 8), at the same time measuring it by means of this graduated vessel—a method which must be adopted in all cases in which the sliding over of a glass disc cannot possibly be effected, (as in the case of measures defined by pins), and which may also be used in cases where a glass disc is employed, the process being repeated until there no longer remains any air bubble under the glass disc.

If the water level should stand above the defining limits, or if a portion of the contents of water has already overflowed, then in the former case, so much water must be drawn off, by means of a small glass syphon, as will make the water level correspond with the defining line of the measure; and in the latter case, the glass disc, if possible, must be carefully slid on, and in both cases the contents of water must then be poured back into the standard measure, which will now be not completely filled by it. By means of the air bubble remaining in the standard measure under the glass disc, or by filling up the standard measure from a burette, the amount of error may be easily determined.

Air bubbles.

7. If the admissibility of the measure is to be ascertained by the *air bubble* (see No. 6) which may remain under the

Appendix XI.—*continued.*

glass disc, it is to be remembered not only that this admissibility is limited for each measure by an air bubble of different size, but also that for the same quantity of air enclosed, a different diameter of the bubble will result according to the condition of the glass disc.

If consequently this method is used, the diameter of the air bubble corresponding with the amount of error tolerated, must be determined for each distinct glass disc by a series of experiments, and registered in the form of tables.

These experiments may be made either by means of a burette (see No. 8) or by weighing (see No. 10).

Burettes.

8. A burette (*Bürette*) intended to serve for the measurement of errors consists in a graduated glass tube with a float gauge, by the defining line of which the height of the water is read off; it has also a small tube of gutta-percha fixed on the lower part of the burette, so as to be easily opened or shut by means of a pinch-cock. The commencing line of the graduated scale is at the upper part, and if the line of the float gauge is made in the first instance to coincide with it, the amount of any quantity of water run off may with certainty be ascertained from the position of the float gauge after closing the pinch-cock.

For measures from 10 L. to 0·02 L. two such burettes are required, one delivering the several quantities of water equal in amount to the errors tolerated in verification, and the other to the errors allowed in trade use.

The former of these burettes must deliver the following cubic quantities corresponding with the errors tolerated in verification:—

For the measure of	10	L.	- 25	c.c.
„	5	„	- 12·5	„
„	2	„	- 5	„
„	1	„	- 2·5	„
„	½	„	- 2·5	„
„	¼	„	- 1·25	„
„	⅛	„	- 1·25	„
„	1/16	„	- 0·62	„
„	1/32	„	- 0·31	„
And for	0·2	„	- 1	„
„	0·1	„	- 1	„
„	0·05	„	- 0·5	„
„	0·02	„	- 0·2	„

The second burette is intended for ascertaining that the errors of trade measures are within the tolerance; it is marked to deliver double the above quantities specified for the respective measures.

Verifying tolerance lines on standard flasks.

9. These burettes may be employed both for originally ascertaining and for subsequently testing the defining lines on standard flasks, in regard to the limits of error tolerated, after their standard capacity has been determined by the method indicated in No. 6.

Verification by weighing the contents of water.

10. The verification of measures of capacity by means of the weight of the water contained in them enables errors to be determined with the highest degree of accuracy, and may therefore be employed for the adjustment of standard flasks, as well as in experiments in regard to air bubbles. But although for the accurate adjustment of standard measures of reference and principal standards, as well as burettes, this method is indispensable, yet it cannot be employed without the aid of instruments, which are neither in the possession of, nor necessary for, the ordinary offices of verification.

In determining the capacity with a very high degree of accuracy by the weight of water, allowance is to be made for the dilatation of the water, and of the measures, at different temperatures, and for the consequent variation of the specific gravity of the former and of the capacity of the latter, so that the exact determination of the capacity of the standard measures can be ascertained only by means of elaborate calculations.

The sources of error here pointed out and their requisite corrections may, however, remain unheeded in such examinations as are undertaken by the ordinary verification offices, provided that the directions previously given with regard to accurately filling the vessels, and for the weighing, be properly observed.

If, as an instance of the simpler method here referred to, the experiments be made which are mentioned in No. 7 for the determination of the different sizes of air bubbles, the amounts in cubic centimeters specified in No. 8 will indicate the proper weights for the quantities of water corresponding to the errors tolerated, as they also agree with the weight in grammes of these quantities of water.

Verification of working standards.

11. As to the comparisons of the working standards with the standards of reference to be made from time to time by the verification offices, (see § 50 of the General Regulations), they must be carried out in conformity with the method prescribed in No. 6. For determining the amount of error, a burette may be employed, by which it must be ascertained by estimation whether any error exists not greater than two-fifths of the error tolerated for verifications.

Adjusting measures.

12. In adjusting measures of capacity pursuant to § 80 of the General Regulations, care must be taken that the prescribed form of the measure be not perceptibly altered.

Stamping.

13. At the stamping of liquid measures the directions of § 13 of the General Regulations are to be followed.

Certificates of verification.

14. The certificates of verification are to be made out in the following form:—

Verification Certificate II., No. , for Liquid Measures.

For Mr. , at .

The liquid measures herein-after specified having been found correct within the errors tolerated have been stamped as verified, and the following fees are chargeable according to the tariff:—

Number of Measures.	Denominations of Measures in Litres.	Fees according to Tariff. For Verification. Thal.	Sgr.	Pf.	For Adjustment. Thal.	Sgr.	Pf.

Verification office at , the 18 .

(*Signature of Chief Verifying Officer.*)

Stamp.

It is to be understood that if no adjustments have been made, the corresponding column in the above form must be struck out.

If any reduction of fees is made, as provided in the tariff for larger quantities of measures of the same denomination, its amount must be deducted from the sum total of the fees of verification at the foot of the certificate.

15. If any old measures of capacity which with regard to their width may deviate to a greater extent than is allowed by § 18, shall have been stamped in pursuance of § 88 of the General Regulations, it must be stated in the certificate that such greater deviation from the prescribed width so allowed by § 88 has been found to exist.

III.—*Instruction for verifying Casks.*

(*See* §§ 12 and 13 of the General Regulations.)

Tare of casks.

1. In the gauging of casks, besides determining the capacity in litres, it is allowable also to ascertain the tare or weight of the cask itself, if it should be desired.

Hoops.

In such case, those casks and especially any that are intended to hold spirits for export which are bound with hoops, (that is to say, with two to four wooden hoops at both sides of the bung hole, intended merely to protect the barrel against injury when being filled or emptied, and which may be removed at pleasure without affecting the use of the cask as a vessel of capacity), must have their hoops removed before being examined, and the hoops also are not to be included in the weight of tare.

Gauging rods prohibited.

2. The capacity is to be determined by means of an apparatus for ascertaining the cubic measurement.

The use of a gauging rod for determining the capacity of casks is prohibited.

Apparatus for ascertaining the cubical capacity.

3. The instruments for testing casks and their cubical capacity belong to the class of auxiliary apparatus, which are only allowed to be used by the verifying offices after they have been examined by the superintending authorities, and found fit. (§ 70 of the General Regulations.)

The chief condition of their admissibility is, that the cross section of the water tube upon which any uncertainty arising in the determination of the capacity, from ascertaining the height of the surface of the water contained may depend, is not so wide as to endanger the accuracy of observation prescribed in the testing of casks.

Construction of such instrument.

4. Such measuring instrument may be constructed in the following manner:

The measuring vessel, the body of which must be exactly cylindrical, should be made of cast iron, copper plate, tinned iron plate, or zinc plate; the bottom of the vessel, which should be of conical shape, is to be fixed in a wooden stand, which it should closely fit; a conducting tube, furnished with a cock, is to be attached to the extremity of the cone.

At the side of the cylinder is a glass tube, which communicates with the interior of the vessel, at the lowest point of the vertical part of the metallic plate, by means

Appendix XI.—*continued.*

of a tube furnished with a stop-cock, and it serves for observing the height of the water level in the cylinder.

Either upon the tube itself, or upon a plate of metal immediately close to it, is a graduated scale to which are attached two moveable pointers for noting the water level at the beginning and the end of the observation.

The divisions of the scale are to be made in liters and fractional parts, so that any difference in height may be readily noted up to one millimeter.

It is expedient to have a large cistern of water in the verifying room, in order that the water may take the temperature of the room.

Three sizes to be used.

5. With regard to the provisions of No. 3, there should be three sizes of such instruments for measuring the cubical capacity, adapted to the different sizes of casks, viz., cylindrical measuring vessels of eight decimeter, four decimeter, two decimeter, which by observing any difference of one millimeter in the height of the water level, may serve to measure the capacity of casks with sufficient exactness within $\frac{1}{2}$ L., $\frac{1}{8}$ L., $\frac{1}{32}$ L., respectively.

As the actual capacity of casks is to be ascertained up to $\frac{1}{300}$ of their stated capacity, (see § 12 of the General Regulations), the limits of error tolerated in casks of 150 L., 37·5 L., 9·4 L., respectively, will be not exceeded, whenever any difference of the water level in the measuring apparatus can be read with no greater uncertainty than one millimeter at most, and the measuring vessels mentioned are therefore proper for testing casks the capacity of which exceeds 160 L., 40 L., 10 L., respectively.

If the total length of the scale to be read in the case of each of these measuring vessels is assumed to be 1·3 meter, the largest sized cask which can be tested by these measuring vessels, by once emptying them, will amount to about 640 L., 160 L., 40 L., respectively.

Mode of measuring cask.

6. Before measuring a cask, it is first to be examined for the purpose of ascertaining whether the cask is in accordance with § 12 of the General Regulations, and is quite empty.

It must then be filled through the bung hole until the water reaches up to its opening, and the capacity of a large cask may then be inferred from the quantity indicated by the scale on the measuring vessel, from which it has been filled upon observing the difference of the water level at the commencement and the end of the process, taking also into account, when requisite, how many times the measuring vessel has been emptied.

Care must be taken in these operations that the temperature of the cask is nearly the same as that of the water.

Stamping.

7. In stamping particular attention must be paid to the directions of §§ 12 and 13 of the General Regulations in regard to the designation of the capacity, and if the determination of the tare weight of the cask is desired, the same is to be indicated in kilogramms or lbs. up to tenths of these units, a K. or lb. being added.

If the branding of the stamp is not practicable, in casks of metal, for instance, the stamping must be effected upon a metal plate soldered on; and for security, the solder which unites the two must be also stamped.

Certificate of verification.

8. The form of the certificate of verification is to be as follows:—

Certificate of Verification III., No. , *for* { 1 cask. / casks.

For Mr. at .

1 cask has been / casks have been } examined with regard to its capacity, and the weight of tare, and having been duly marked according to the regulations with the number of the year and the stamp, as stated in the following specification, the under-mentioned fees have been charged conformably to tariff.

No. of Certificate of Verification.	Designation of Cask.			Tariff Fees.					
	Number of Cask.	Capacity in Litres.	Weight of Tare.	For Verification.			For Determination of Tare.		
				Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

Verification office at , the .

(*Signature of Chief Verifying Officer.*)

(Stamp.)

Those columns of the form which do not apply to the respective cases, must of course be struck through with the pen.

If one form will serve for several casks delivered by the same party at the same time for verification, the reduction of fees according to tariff, if any, must be made by subtraction from the sum total.

In the case of other than wooden casks, the material of which they are made must be specified in the certificate of verification.

All casks verified in the course of one year must be marked with running numbers commencing with No. 1.

IV.—*Instruction for verifying Dry Measures of Capacity.*

(*See* §§ 14–21 and 88 of the General Regulations.)

Verification of measures made of wood bent round.

1. In the preliminary examination of the larger measures made of thin wood bent round, care is to be taken that the separate parts are securely joined to each other.

The bottom of measures from 1 H. to 20 L. must be not less than 18 mm. in thickness, and that of lesser measures not less than 12 mm. Of this thickness, one-third must extend under the rounded sides of the measure as far as the outer surface, and the upper two-thirds must press closely against the lower part of the inner surface of the rounded body; at the latter place the bottom must be securely fixed by nails.

As regards measures of 1 H. and $\frac{1}{2}$ H., they must be strengthened with three bands of hoop iron placed upon the under side of the bottom so as to form a regular hexagon with radial lines, and at the edge they must be turned up at right angles, and reach up the sides nearly to the upper rim. They must be attached to the bottom and the sides by nails, the ends of which must be clenched inside. One of these bands must be placed on the line formed by the overlapping of the bent wood on the side. The outside of the upper rim of the measure must be bound round by a band of iron, and this must be secured by nails to the ends of the other iron bands, and also to the measure.

A further strengthening cross piece must be fixed diametrically at the top of the measure in such a position that one of its ends meets the line formed by the overlapping of the bent wood, and that the upper surface of its broad side lies in a level with the top of the measure, the ends being turned down and secured by rivets to the iron band of the rim and the sides of the measure; from the middle of this cross piece, an iron support reaches to the bottom, this support being joined to the cross piece by a countersunk rivet, and resting upon the bottom by means of a shoulder; and, lastly, the lower end of this support reduced to the form of a pin or bolt, passes right through the bottom and through the three iron bands crossing each other, and is then riveted.

If the measure is provided with handles, one of them must be placed over the overlapping line of the bent wood, and must be fixed so as not to split the wood, which might happen if the nails were in the same line of the grain of the wood.

In the case of measures of $\frac{1}{4}$ H., 20 L., and 10 L., it will be sufficient that two bands of hoop iron cross each other at the bottom; they must be fastened in the same manner and be joined to the bottom and sides, as well as to an iron band attached to the upper rim.

Ascertaining the diameter.

2. For ascertaining the right diameter of these measures a similar course may be followed to that directed for liquid measures under No. 1 of the Instruction II.

Dry measures of metal.

3. Dry measures of capacity made of metal are to be tested by weighing their contents of water in the same way as that specified for liquid measures under Instruction II.

Wooden measures to be thoroughly dried.

4. Measures of capacity for dry commodities made of bent wood, cannot be verified unless they shall have been kept for some days previously in a dry and airy room.

Filling apparatus for dry measures.

5. Fig. 5 to 8 represent a filling apparatus for testing the capacity of wooden dry measures of a convenient form for practical use, millet grains or rape seed being used. The dimensions of these figures are about $\frac{1}{20}$ of the actual size of the filling apparatus for measures from $\frac{1}{2}$ or $\frac{1}{4}$ H. to 10 L., the figures 9 and 10 are about $\frac{1}{20}$ of the natural size for measures from 5 L. downwards.

Appendix XI.—*continued.*

Fig. 6.

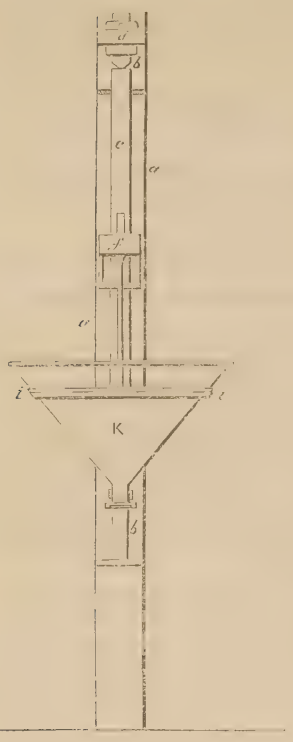
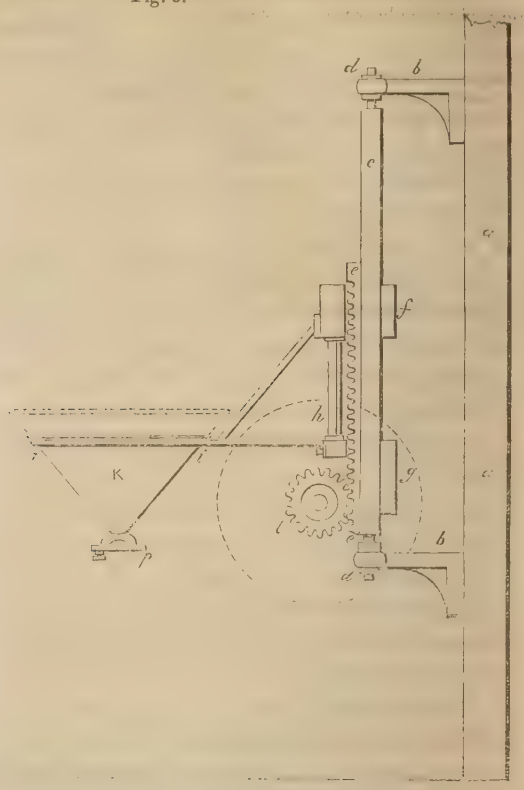


Fig. 5.



In the larger apparatus the iron bar *c* (see Figs. 5 and 6) is supported by the brackets *b*, *b*, fastened to the wall *a*, so as to be secured in a vertical position between the ends of the two screws *d*, *d*, round which pivots it can be turned. Affixed to it is the toothed rack *e*, *e*, and this is embraced by the two guiding pieces *f*, *g*, which are moveable in regard to their height. These two guiding pieces are connected by the rod *h*, and hold the frame *i*, *i*, into which the funnel *k* for filling the measures is placed. To the guide piece *g* are attached short spindles that carry the cog wheel *l*, the pinion and rack *m* (see Figs. 7 and 8) and the winch handle *n*. The effect of the cog wheel *l* working in the toothed rack *e*, by turning the winch handle *n*, is that the funnel *k* can be raised or lowered, and it is kept in its position by a catch attached to *g*.

The funnel *k* for filling is quadrilateral with its sides inclining inwards at an angle of 45° from the horizontal plane. It is to be made of zinc or tin plate, and its inner angles are rounded off with solder for preventing single grains being retained within them. The upper opening should be a square of about 56 centim., for filling measures of about the capacity of ½ H. If the funnel is required for filling measures up to ½ H., the upper opening must be a square of about 64 centim., as represented by the dotted lines in Fig. 5. To the bottom of the funnel a brass end piece *p* is attached having two outlets with wire gauze across them, the interstices of which are about six millim. wide. These can be opened or closed by means of a sliding piece. The outlets are about 25 millim. square; they must be smooth without any projection inside, so as not to offer any obstacle to the grains running through.

Fig. 7.

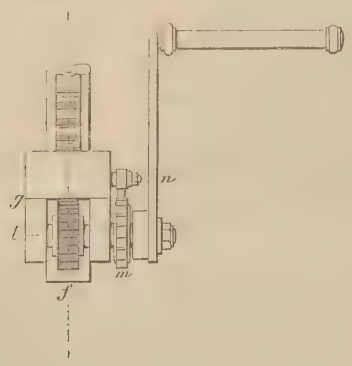


Fig. 8.

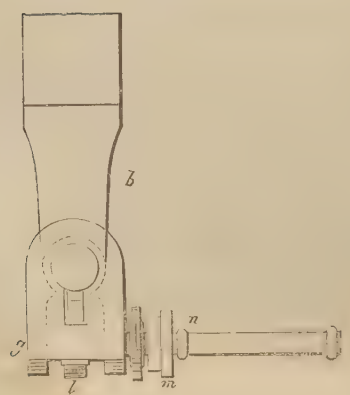


Fig. 9.

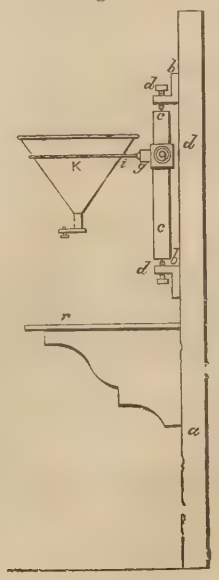
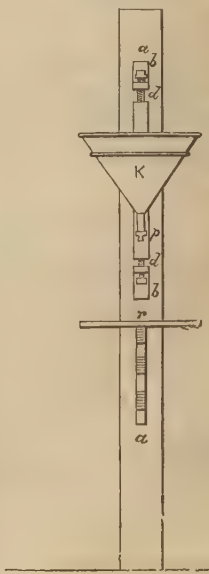


Fig. 10.



Appendix XI.—*continued.*

The directions given above are also applicable to the several parts of the smaller apparatus for filling, represented by Figs. 9 and 10. In this case the frame *i*, which bears the funnel *k*, is adjustable in regard to its height by means of its connection with the single guide piece *g*, which moves immediately upon the vertical iron bar *c*, and can be fixed by the tightening screw *q*; underneath the apparatus the table *r* is fixed, upon which the measures to be examined are placed, and the funnel *k* has above an opening of 31 centim. square, and below is an outlet 15 millim. wide.

Instead of this more complete apparatus, simpler contrivances for supporting the filling funnels may be used; for instance, a three-legged stand may also be employed, provided the directions herein-after specified for securing the proper execution of the process can be followed.

6. The mode of using the apparatus described above is as follows:—

The working standard corresponding with the measure to be verified is completely filled with grains, and the contents are poured into the funnel, the outlet of which is closed; the working standard is then placed in its proper position, care being taken that the funnel is over the middle of it and fixed at the height which will herein-after be more exactly indicated; the contents are then made to pass through the outlet into the standard. Leaving the funnel for a time, the heaped cone in the standard is to be carefully distributed within its measuring capacity by means of a wooden strike, and any excess to be struck off.

The contents of the working standard are then to be poured into the funnel, the measure to be examined being placed under it exactly as the working standard was previously placed; and in case the measure is provided with a transverse stay, it is to be so placed that the grains fall from the two outlets on each side of this middle bar, when the contents are let off, and the cone upon the measure will be thus entirely cut through. The result will be either that the grain will exactly fill the measure, or the excess must be struck off and collected in order to ascertain the amount, or lastly there will remain some space not filled up, according as the measure may be of the correct size, or either smaller or larger than the working standard (see No. 10).

7. For carrying out the preceding directions as to the mode of verifying these measures, several special precautions are to be enjoined, by the careful observance of which concordant results can alone be attained.

(*a.*) The equal distribution of the grain in the measure depends on the actual condition of the grain; for instance, it is found that discordances in successive fillings arise when the grain has been kept standing for some time; the grain to be used for testing must therefore be made to run several times through the apparatus before being actually used for measuring.

(*b.*) The density with which the grains pack together depends upon the height they have to fall; it is consequently absolutely necessary that the vertical distance between the outlet of the funnel and the bottom of the working standard and of the measure to be verified be exactly the same during the testing. This height must also be determined so that the apex of the cone of grain may be able to form itself without touching the outlet of the funnel. As a convenient distance of the apex of the cone from the lower end of the funnel for the larger measures, about 25 mm. may be taken, and for smaller measures from 10 mm. to 15 mm.

(*c.*) The measure must be kept altogether free from any shaking until the examination is quite finished, consequently no concussions either from without, for instance, by the motion of carriages on paved streets, nor in the building itself by persons walking to and fro, must be suffered to affect the floor upon which the measure is placed, when the larger apparatus is used.

(*d.*) The distribution in the measure of the cone of grain must be effected by its being moved horizontally, not by its being packed together vertically by means of the wooden strike, which is easily done, especially if the strike is held in an oblique position. The strike must consequently be always kept, as regards its under surface, in a horizontal plane, which can be determined by the rim of the measure, so that any concussion of the measure may be avoided; it is also to be especially noted that at the end of the process the distribution of the grain must be completed by turning the strike round the vertical line in the middle of the measure.

8. If a measure to be examined is twice the size of the working standard, for instance, when a measure of 1 H. is to be tested by a working standard of ½ H., the working standard must be twice successively emptied, during which operation no change of place is to be made in the measure to be examined. It is also to be borne in mind that at the filling of the second half of the measure, the height of fall, which must always be the same as that for the filling of the standard, is to be counted, not from the bottom, but from the upper plane of the lower half of the measure.

Wooden strike.

9. The strike must be made of hard wood, with a plane under surface of from 25 mm. to 8 mm. in breadth; the length must somewhat exceed the diameter of the largest measure for which it is intended. The following lengths are consequently to be recommended:—

65 centimeter	for	1 H. and ½ H.
70 „		25 L. to 10 L.
25 „		5 L. and 2 L.
15 „		smaller measures.

In proving the strikes, it must be seen whether the lower surface is perfectly plane, which is to be done partly by looking straight along it, and partly by using an iron straight edge.

Ascertaining errors of measures.

10. For ascertaining the amount of any errors in measures of capacity which may be found in carrying out the directions of Nos. 5–8 of Instruction II., as regards either the collected excess of water after filling or the additional quantity required for filling, there may be used either small tolerance glasses, each of which is to serve for a specified measure and to bear its designation, or cylindrical glasses with a defining line for the exact tolerance quantity, and corresponding with the error tolerated in each of several measures; or else burettes constructed in conformity with No. 8 of Instruction II.

The two former are auxiliary instruments especially to be employed in the testing of measures by filling them with grain, the latter for those tested by filling them with water.

Small tolerance glasses.

11. Small tolerance glasses may be constructed expressly for the larger measures, or else the smaller measures of capacity may be employed in their stead.

For instance, the error tolerated in verifying metal measures is indicated—

For the measure of	1	H.	by the measure of	0·2	L.
„ „	½	„	„ „	0·1	„
„ „	¼	„	„ „	0·05	„
„ „	20	L.	„ „	0·05	„

and in the case of *wooden* measures—

For the measure of	1	H.	by the capacity of	0·7	L.
„ „	½	„	„ „	0·2	„
„ „	¼	„	„ „	0·1	„
„ „	20	L.	„ „	0·1	„

The error tolerated for measures used in trade amounts in both cases to twice the amount of tolerance thus specified.

It follows that the above-mentioned measures from 0·2 L. to 0·05 L. may be fitly used in the case of any measure from 1 H. to 20 L. which has been tested by its contents of grain and found to be too large, by filling them once or oftener with the quantity of grain struck off; or, in the case of a measure which has been found to be too small, by filling them with grain from the smaller tolerance measures until the requisite capacity is fully made up.

Cylindrical glasses.

12. It may be found more convenient to use cylindrical glasses for ascertaining the amount of error, one of such glasses being constructed to show the cubic measurement of the greater error tolerated in the larger wooden measures of capacity, and being also provided with marks for defining the cubic amounts of other errors allowed.

The errors thus allowed are as follows:—

For	1	H.	- -	400 cubic centimeter.
„	½	„	- -	200 „
„	¼	„	- -	100 „
„	20	L.	- -	100 „
„	10	„	- -	50 „
„	5	„	- -	25 „

A second cylinder is to be provided with marks for the errors tolerated in verifying the smaller wooden measures of capacity.

Such errors are as follows:—

For	2	L.	- -	10 cubic centimeter.
„	1	„	- -	5 „
„	½	„	- -	5 „
„	¼	„	- -	2·5 „
„	⅛	„	- -	2·5 „
„	1/16	„	- -	1·25 „
„	0·2	„	- -	2 „
„	0·1	„	- -	2 „

For ascertaining the amount of error tolerated in measures in trade use, amounting to twice the tolerance mentioned above, the same cylinders may be employed for measuring the double quantity.

In determining the amounts of error of metal measures of capacity, which may be tested by means of water, burettes may be employed in the same manner as directed under No. 8 of Instruction II. for liquid measures.

Appendix XI.—*continued.*

The burettes there mentioned as to be used for ascertaining the amount of error tolerated in the verification, as well as in the trade use of measures, from 10 L. to 0·2 L., may also be employed for the measures now under consideration, as the errors tolerated in metal measures of capacity for liquids and for dry commodities are the same. It is only to be observed that the two smallest liquid measures are not in use as dry measures.

For metal measures of—

1 H.	the error tolerated in verification amounts to - -	200 cubic centim.
½ H.	„ „	100 „
¼ H.	„ „	50 „
20 L.	„ „	50 „

Consequently the measures of 0·2 L., 0·1 L., and 0·05 L. may either be directly used for ascertaining the amount of error, or a burette containing one of these three measures, or else a cylindrical glass corresponding to these quantities, may be constructed, of the same kind described in No. 12.

With regard to the determination of the error tolerated in trade, the remark at the end of No. 12 should be borne in mind.

Errors on weighing contents of water.

14. As regards the examination of metal measures of capacity for dry objects, by weighing their contents of water, attention is to be paid to what is said on this subject under No. 10 of Instruction II.

Verification of working standards of capacity.

15. The verification of the working standard measures of capacity, as to their due accuracy, to be made by the verifying offices by comparing them with the standard measures of reference, is to be effected by the method of filling them with water and using glass discs, according to the process described under No. 6 of Instruction II.

In such cases, for testing the smaller measures up to 2 L., the standards of reference for liquid measures are to be used; for the measures from 5 L. to ¼ H. the corresponding standards of reference should be employed; and for the working standards of ½ H. and 1 H. the ¼ H. standard may be used, filling it successively twice or four times.

Adjustment.

16. As regards any work of adjustment, the remark in No. 12 of Instruction II. with reference to metal measures of capacity is applicable. In regard to wooden measures of capacity, only such verification offices as are provided with the necessary appliances for making the rim a true plane, will be able to undertake work of this description.

Stamping.

17. For stamping measures, the directions contained in §§ 15 and 21 of the General Regulations are to be followed; and it is to be borne in mind that according to § 15 of the Regulations, the verifying offices are also charged with the marking of wooden measures wherever such designation has not yet been effected.

If the stamping of wooden strikes is desired, they are to be stamped in the same manner as wooden measures of length, and this is to be done at both ends of the plane under surface required for use.

Certificate of verification.

18. For metal measures of capacity, wooden measures, and strikes, certificates of verification different in form, are to be delivered.

a. For the former description the form is to be as follows:—

Verification Certificate IV*a.*, *No.* , *for Metal Measures of Capacity for Dry Objects.*

For Mr. at .

The under-mentioned metal measures of capacity for dry objects, which have been found correct within the error tolerated, have been verified, and the fees specified below are chargeable according to the tariff.

Number of Measures.	Denomination of Measures.	Fees according to the Tariff.					
		For Verification.			For Adjustment.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

Verification office at the 18 .

(*Signature of Chief Verifying Officer.*)

Stamp.

b. For the second description the form is to be similar; except that for the word "metal" is to be substituted the word "wooden," and the number of the certificate is to be IV*b.*, No. .

c. The third form is to be as follows:—

Verification Certificate IV*c. for Wooden Strikes.*

For Mr. at .

The under-mentioned strikes have been verified, and the fees specified below are chargeable according to the tariff:—

Number of Measures.	Length of the Strikes in Centimeter.	Fees according to the Tariff.		
		Th.	Sgr.	Pf.

Old measures of capacity.

19. If, in accordance with § 88 of the General Regulations, any old measures of capacity which, in respect to their width, are found to deviate from the prescribed size to a greater extent than that indicated in § 17, shall have been already stamped, it must be mentioned in the certificate that a greater deviation than that allowed by § 88 exists.

V.—*Instruction for verifying Weights.*

(*See* §§ 22–29 and 89 of the General Regulations.)

Inadmissible weights.

1. Iron weights with any coating upon them liable to rub off are not admissible for verification.

How to verify admissible weights.

2. In testing any weights which at the preliminary examination shall not have been found inadmissible, the process directed under No. 3 of Part I. as to weights of a similar description is to be observed, the comparison being made with a standard corresponding to such weights in regard to size and description, (whether weights of precision or trade weights). To employ the working standards for verifying weights of precision for the verification of trade weights appears not to be allowable for this reason, that if so used these standards would be exposed to a more rapid deterioration.

Error tolerated.

3. If the weight to be verified is found before comparison to differ from the standard, the tolerance weight (§ 54), corresponding to its denomination, is to be used for ascertaining the difference between the amount of error thus found and that tolerated by § 28 of the General Regulations. If this tolerance weight is added to the side which has the least weight, it will be clearly indicated by the play of the balance whether the error is either greater than the tolerance, or equal to it, or smaller.

Mode of verifying new cast-iron weights.

4. In verifying new weights of cast iron with an adjusting hole, the working standard is first to be exactly counterpoised, (Instructions, Part I., No. 3), and the new weight, with the verification plug belonging to it, is then to be placed upon the pan of the balance in lieu of the standard. Its just weight is to be given to it, when requisite, either by the addition or the subtraction of such material as is allowed for adjusting, (lead, tin, or small pieces of iron).

The plug is then to be inserted in the adjusting hole, and, first by light strokes of a hammer, afterwards by means of a punch, it is to be so tightly driven in that it cannot be again extracted without being totally destroyed.

Finally, the weight is once more to be placed upon the pan of the balance, and the excess of weight, if any, is to be removed from the head of the stopper; the latter is then to be marked once or more with the stamp, (see §§ 29 and 78 of the General Regulations) in such manner that any attempt to lift the plug must necessarily cause the destruction of the mark of the stamp.

Flat cylindrical weights.

5. In verifying new cast-iron weights of a flat, cylindrical, or disc shape without an adjusting hole, the excess, if any, of weight is to be removed by filing off as evenly as possible from the under surface. Weights that are too light and not capable of being adjusted by the verification plug are to be rejected.

New brass or bronze weights.

6. In verifying new weights of brass, bronze, and similar metal, the comparison must be made in conformity with the directions under 4 and 5.

Any adjustment of weights of this description, which are found to be too heavy, must be effected by filing the under surface, or, in the case of weights of thin plate, by filing the rim, so as to preserve the smooth surface of the plate, and to avoid rough strokes of the file.

Weights of this description found to be too light are, as a rule, to be returned. In special cases only, an adjustment may be effected by boring and adding a metal of greater specific gravity, and then closing the hole by a plug, which must be made of the same metal as the weight itself, and be levelled off at the surface.

Appendix XI.—*continued.*

7. In testing cup weights, if any one of the weights is found to be incapable of being adjusted, the whole set is to be returned without verification.

In determining the fees for verifying cup weights, each separate weight must be charged, just as any other weight of the same denomination; because the work of verification is in no way lessened in proportion to the greater number of weights in the nest of cup weights delivered for verification.

When cup weights are returned in consequence of any single weight having been found unsatisfactory, only the fees for the weights actually verified are to be charged.

8. The stamping is to be effected in conformity with the directions contained in §§ 29 and 78 of the General Regulations.

9. In re-verifying weights which have been in use, the double tolerance weight (§ 57 of the General Regulations) is to be employed for ascertaining whether any error exists greater than that allowed in trade, in the same manner as indicated under No. 5 for ascertaining that the error is not greater than is tolerated for verification.

In other respects, the directions laid down in § 81 of the General Regulations, are to be followed in the case of these weights.

10. Under the head of expenses incurred for the requisite materials, in pursuance of § 82 of the General Regulations, the costs of the verifying plug and of the metal for adjustment are to be specially charged in the certificate of verification, unless these materials shall have been delivered in serviceable condition, and in sufficient quantity, to the Verifying Office, together with the weights to be verified.

The Verifying Office is also authorised to make a special charge for the expenses of extracting a verification plug, if this work shall have been performed at the request of the parties concerned (§§ 80, 81). This operation is to be considered as an extra work of adjustment, under the terms of § 80.

11. In the comparison of the working standards with the standards of reference, which is incumbent upon the verification offices according to § 50, the standards of reference are to be handled with the utmost caution. It is material that they should not be touched with the bare hand, but must be taken up with the forks or forceps intended for this purpose, or by the intervention of a smooth cloth.

According to § 54 and § 28 of the General Regulations, the deviation from the standards of reference must not exceed the following allowance:—

Denomination of working Standards.	Error tolerated.	
	For Weights of Precision.	For Trade Weights.
50 K.	1 G.	2 G.
50 lb.	8 D.	16 D.
20 K.	8 „	16 „
10 „	5 „	10 „
5 „	25 C.	5 „
2 „	12 „	24 C.
1 „	8 „	16 „
500 G.	5 „	10 „
½ lb.	25 M.	5 „
200 G.	20 „	4 „
100 „	12 „	24 M.
50 „	10 „	20 „
20 „	6 „	12 „
10 „	4 „	8 „
5 „	2·4 „	
2 „	1·2 „	
1 „	0·8 „	

Whenever it may appear at all doubtful, from the results of weighing with the balances of the Verifying Offices, (which may happen with regard to weights of precision), as to whether the working standards still possess the requisite accuracy, they must at once be sent by the Verifying Offices to their superintending authority.

12. With regard to the certificates of verification of weights, a distinction is to be made in the seven following cases, in order that they may agree with the statements required to be entered in the return of annual business performed:—

Trade weights:—
- *a.* Of iron.
- *b.* Of other metal.
- *c.* In the form of a set of cup weights.

Weights of precision.
- *d.* Of iron.
- *e.* Of other metal.
- *f.* In the form of medicinal weights.
- *g.* In the form of a set of cup weights.

The following forms are therefore to be used:—

(*a.*) *Verification Certificate* V*a*, *No.* , for Trade Weights of Iron.

For Mr. at .

The under-mentioned trade weights of iron, having been found correct within the error tolerated, have been verified, and the following fees are charged according to the tariff:—

Number of Weights.	Denomination of Weights.	Fees according to the Tariff.								
		For Verification.			For Adjusting.			For Material used.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

Verification Office in the 18 .

Stamp.

(*Signature of Chief Verifying Officer.*)

(*b.*) *Verification Certificate* V*b.*, *No.* , for Trade Weights of .

For Mr. at .

The under-mentioned trade weights of , having been found correct within the error tolerated, have been verified, and the following fees are charged according to the tariff:—

Number of Weights.	Denomination and Material of Weights.	Fees according to the Tariff.					
		For Verification.			For Adjusting.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.
		&c.		&c.			

As a matter of course only such weights as are of the same material (brass, german silver, &c.), and of the same denominations can be included in one specification.

(*c.*) *Verification Certificate* V*c.*, *No.* , for Trade Weights in Form of a set of Cup Weights.

For Mr. in .

The under-mentioned cup weights, having been found correct within the error tolerated for trade weights, have been verified, and the following tariff fees are charged:—

Number of Weights.	Denomination of Weights.	Tariff Fees.					
		For Verification.			For Adjusting.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.
		&c.		&c.			

In the second column is here to be placed, according to the case, 1 K., or 1 lb., or 200 g.

(*d.*) *Verification Certificate* V*d.*, *No.* , for Weights of Precision of Iron, to be drawn up as under *a*, except that the words "weights of precision" must be substituted for "trade weights."

(*e.*) *Verification Certificate* V*e.*, *No.* , for Weights of Precision of , to be similar to certificate *b*, except that the words "weights of precision" are to be substituted for "trade weights."

Appendix XI.—*continued.*

(*f.*) *Verification Certificate* Vf., *No.* , for Medicinal Weights.

For Mr. at .

The under-mentioned medicinal weights, having been found correct within the error tolerated, have been verified, and the following fees are charged :—

Number of Weights.	Denomination and Material.	Tariff Fees.					
		For Verification.			For Adjusting.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

(*g.*) *Verification Certificate* Vg., *No.* , for Weights of Precision in form of cup weights, to be similar to certificate *c*, except that the words "weights of pre-"cision" are to be substituted for "medicinal "weights."

As to weights of the old system which may continue legal.

13. Those weights which are mentioned in § 89 of the General Regulations, as being legalised for use in the separate States of the Confederation, until the 1st January 1872, and thus admissible for verification, in respect of their size and denominations, according to the provisions of the new weights and measures law, are allowed during the period of transition, and after having undergone revision, to be stamped with the verification stamp of the Confederation, and thus to become legal throughout the whole territory of the Confederation, even if they should not be in strict accordance with the directions of §§ 22, 23, 25, 26, of the Regulations.

By § 90 of the General Regulations, however, power is reserved to the Standards Commission of the Confederation, to specify those weights of the older system at present in use, which shall no longer be admitted in trade after 1st January 1872.

The Verifying Offices must therefore take care not to certify by the verifying stamp of the Confederation, under the terms of § 89 of the General Regulations, any weights which may have been specified by the Standards Commission of the Confederation as henceforth inadmissible in trade, and they are to submit for decision in the prescribed forms, any cases which may be doubtful.

Certificates of verification for old weights.

14. In the certificates of verification which may be issued for weights of the old system, stamped in conformity with the directions contained in No. 13, if these weights differ in any respect from the ordinary description in the new forms, it must be so stated by way of note.

Special postal weights.

15. Special weights of 15 G. and 40 G. for the official use of postal officers exclusively, are declared to be admissible for verification and stamping.

In order to guard against these weights being used for trade purposes, it has been determined—

(1.) That they can only be issued by the Standards Commission of the North-German Confederation;

(2.) That they must be made of brass, in the shape of a four-sided prism, with their edges and corners somewhat smoothed off, and with a knob in the middle, and they must be designated as postal weights.

Consequently, whenever such weights are delivered by the postal authorities to the verification offices to be tested, they are to be considered by the latter as admissible for verification, and are to be treated like other weights.

The greatest error tolerated for the verification of these postal weights is fixed—

With regard to the denomination of 15 G. at 15 Mgr.
„ „ „ 40 G. at 25 „

and the greatest error tolerated for re-verification at twice the amount of tolerance.

VI.—*Instruction for Verifying Balances.*

(See §§ 31–39 and 91 of General Regulations.)

Introduction.

Balances not admissible for verification.

1. In §§ 32 and 37 of the General Regulations, directions are contained with regard to the construction of those balances which are inadmissible for verification.

It must consequently be ascertained, previously to any steps being taken for verification, whether the balance delivered to be tested does not possess such peculiarities that should at once involve its rejection.

In the first place, the balance must belong to one of those systems of construction which are admissible either under § 32 of the General Regulations, or by special permission of the Standards Commission of the Confederation.

But even if belonging to these systems, balances possessing any of the peculiarities specified in § 37 of the General Regulations are to be rejected.

Balances not possessing any of the defects therein mentioned are to be admissible for official examination, and must then, in order to be eligible for stamping, satisfy the special conditions prescribed for the different systems of construction.

Scale beams with equal Arms.

Balances with equal arms.

(See § 33 of General Regulations.)

General construction.

2. Balances with equal arms are those which have a beam or lever with equal arms, which by means of a hardened edge permanently fixed in the middle of its length (*central axis or knife-edge*), rests either upon a curved and hardened surface which forms part of a special contrivance for suspending the beam from the handle (*fork*), or, as is usually the case with finer balances, upon horizontal bearing plates fixed on a column standing in a vertical position.

In order to ascertain the horizontal position of the balance-beam, which indicates an equality of the weight and the counterpoise, a pointer or tongue is attached to the middle of the balance-beam, which, when the position of the beam is horizontal, points vertically up or down; its exact vertical position is to be determined by a defining line marked either upon the fork or the column.

At both ends of the balance-beam, exactly at equal distances from the central axis or knife-edge, are likewise two hardened edges (*end knife-edges*). In order that the scales may be suspended upon them, these knife-edges are placed with the sharp edge uppermost.

The scales are suspended by means of collars, which are furnished with bearings, which work upon the end edges, and with hooks underneath, to receive the scales of the balance, together with the chains or strings which serve to suspend them.

If the end bearings and collars are so constructed and arranged that they cannot easily be lifted off from the end knife-edges, they are to be considered at the examination as inherent parts of the balance-beam.

Special conditions.

3. The following are the requisite conditions to be complied with in the construction of balances :—

Solidity.

(*a.*) *Solidity.*—The balance must, in the first place, possess the necessary solidity in order that in all its parts it may effectually resist the pressure experienced in weighing up to the highest load which the balance is constructed to carry.

This may generally be ascertained by the balance not showing any alteration of form perceptible by the naked eye when loaded to the utmost of its bearing capability.

Whether in such a case any alteration of form has actually occurred which would render the balance unserviceable, must be determined by the tests hereafter to be mentioned of the sensibility of the balance.

Stability.

4. (*b.*) *Stability.*—The balance, up to its greatest bearing capacity, must possess the requisite stability, that is to say, when not too unequally loaded, it must show on both sides an oblique inclination in regard to the equilibrium, that is to say, a greater or less turn of the scale, but must not turn over. This result depends on the reciprocal position of two points, the centre of motion, which remains unalterable in the central knife-edge, and the centre of gravity of the balance, which constantly changes its situation according to the amount of the load.

The stability of balances with equal arms will in general be greater in proportion as the central knife-edge lies higher than the end knife-edges in a horizontal balance-beam, and as the load is increased.

But as the stability of a balance is increased, its sensibility diminishes in the same proportion; it is therefore to be examined whether, at its greatest sensibility, that is, when unloaded, a balance is still sufficiently stable; and, at its greatest stability, that is, when loaded up to its utmost bearing capacity, whether it is still sufficiently sensitive.

Justness.

5. (*c.*) *Justness.*—It is one of the first requisites of a just balance with equal arms, besides the qualities of the separate parts hereafter to be enumerated, that the two halves of the beam, on each side by the middle line of the tongue, should, as nearly as possible, be of uniform shape, and that the two end knife-edges should be at the nearest possible equal distance from the central knife-edge; in fact, the balance must be strictly symmetrical and equal-armed.

As to its symmetry, it may be considered sufficient if no difference in the form of the two arms is perceptible to the

Appendix XI.—*continued.*

naked eye, and if the distance from the extremity of the tongue to each of the two end edges is the same.

Equality of arms, on the other hand, is in like manner to be ascertained, in the first instance, by measuring the distances between each end knife-edge and the central knife-edge, which operation will suffice to detect any difference large enough to render the balance inadmissible. The exact condition of the arms as regards their equal length can, however, only be ascertained by the method hereafter to be indicated.

Bearing capability and sensibility.

6. (*d.*) *Bearing capability and sensibility.*—As a balance is to serve for weighing very different loads, and as the requisite solidity of the construction of the parts on one hand, as well as the limit within which a determinate accuracy in weighing is to be attained, upon the other hand, is dependent on the amount of the load, it is prescribed (§ 33 of the General Regulation) that the examination of balances must have reference to their bearing capability, that is to say, their being serviceable within the limits of the load for which they are intended, and that the amount of the bearing capability, or the greatest load they can bear upon one side (see No. 9) shall be marked on the balance-beam.

Considering the great diversity of balances, it is not possible to lay down general and simple rules by which the bearing capability may be inferred from the material and the dimensions of the balances. The bearing capability must consequently be determined by trials, which are to show, in the first place, that the balance-beam, with the greatest load for which it is intended to be used, does not change its form; in the second place, that the balance, under every loading for which it is intended, exhibits a sufficient accuracy in weighing, in other words, is sufficiently sensitive, or possesses sufficient sensibility; because, in general, the sensibility of the balance decreases in proportion to the increase of load, consequently, a balance may be deemed serviceable, if marked as capable of bearing a smaller load, but unserviceable for a greater load.

Separate parts of a balance.

7. The requisite conditions of construction for the separate parts of a balance, are as follows:—

Balance-beam.

(*a.*) *The Balance-beam.*—The balance-beam must, independently of the qualities already mentioned of solidity, stability, and equality of arms, directions for the minute examination of which will be hereafter given, show a perfectly free play in a vertical plane, and neither itself nor with its tongue come into contact with any other part to impede its action.

Knife-edges and bearings.

(*b.*) *The knife-edges and bearings.*—The knife-edge of the central axis must be in a straight line, and the two side surfaces must form a smaller angle with each other, in proportion as the greatest loading capability of the balance is reduced.

The end knife-edges must be so fixed upon the ends of the beam as to be parallel with each other, and with the central knife-edge.

If, as is especially the case with very fine balances, the beam and the scales are suspended from points, the three suspension points must lie in the same straight line.

The equality of the distance of the end knife-edges from the central knife-edge has already been mentioned under No. 5.

None of the bearings of the edges must be too short, they must have a regular radial curve, and in the line of contact of the knife-edges must be as smooth as possible.

The knife-edges and bearings must have perfectly free play without any jamming or side friction, and the bearings must only just touch the extreme line of the knife-edges.

The knife-edges as well as the bearings and suspending collars, in short, all those parts which in the oscillations of the balance form centres of motion (see § 31 of the General Regulations), must be of sufficient hardness to afford security against too rapid wear and deterioration.

Scales.

(*c.*) *The Scales.*—The scales belonging to a balance, and which also are not to be stamped, must together with any chains, strings, or rods that serve for their suspension, be of equal weight, without any compensating materials, such as wire, pieces of lead, &c., being used.

Mode of testing at the verification offices.

8. The mode of testing to be adopted at the Verifying offices will next be described.

The conditions enumerated in the preceding number for determining the serviceableness of a balance, are to be examined into by the verifying office in the following manner, in order to show (*a*) the good construction of the balance in general; (*b*) its sensibility; and (*c*) the accuracy of its working.

General examination of balances.

(*a.*) *Examination in general.*—After it has first been ascertained that the balance possesses none of those faults, which according to §§ 31 and 37 of the General Regulations, involve its immediate rejection, and especially that the knife-edges and bearings are sufficiently hard; the examination as to its solidity, stability, and the proper construction of the separate parts of the balance are to be proceeded with.

In the first place, a fine thread is to be stretched over the end knife-edges in order to test the position of the central knife-edge by this thread. Then the balance is to be charged with the utmost load intended for it, and it is to be ascertained by the thread whether the beam is at all bent. If this is not the case, the balance will possess sufficient *solidity*, and the further examination is to be proceeded with. If, on the contrary, the beam is perceptibly bent, the balance is to be rejected.

For examining the *stability*, the scales are to be removed from the balance, and a slight oscillating motion is given to the balance-beam. The duration of the oscillation or play of the balance shows the degree of its stability. The slower the oscillations are, or in other words, the greater the inertia of the balance, the less stability it possesses. If the beam when unloaded constantly returns, though by slow vibrations, into its position of equilibrium, the balance is sufficiently stable, and the further examination is to be gone on with. If on the contrary, the beam turns over, the balance must be rejected, unless by re-grinding the central knife-edge, so that the line of bearing be moved somewhat higher up, the fault can be got rid of.

If the balance has proved sufficiently solid and stable, the preliminary examination is to be made as to the *symmetry of its parts, and equality of arms* (No. 5), and it can be judged by a rapid glance of the eye whether the balance-beam is uniformly constructed in its two halves, and determined by means of a pair of compasses whether the point of the tongue and the central knife-edge are at an equal distance from the two end knife-edges. If any irregularity in these distances is perceptible by this test, the balance must be returned. If no such irregularity appears, the examination as to the proper construction of the separate parts is to be proceeded with.

For this purpose the balance-beam with its scales attached, is put into vibration, and it is to be ascertained whether this motion continues without any side friction, and whether the knife-edges and bearing play freely without jamming and friction.

Sensibility and bearing capability.

9. (*b.*) *Examination of sensibility and bearing capability.* As in general the sensibility of a balance diminishes in proportion to the increase of its load, it will suffice to ascertain that with the highest load for which it is to be used, the balance continues sufficiently sensitive; the examination of the sensibility and that of the bearing capability are consequently to be undertaken together.

For this purpose, the weight marked upon the balance-beam as being its greatest bearing capability is placed upon one of the pans of the balance, and the balance is then brought into equilibrium by means of a counterpoise. There must then be placed in one of the pans the requisite additional weight by means of which, and with reference to the purposes for which the balance is intended to be used, the limit of its admissibility is to be determined under § 38 of the General Regulations. For instance, in the case of an ordinary balance, the bearing capability of which is marked as 100 K., the balance is to be weighted in each pan with 100 K., and after a weight has been added to one of the pans of 50 G. (viz. 100 times 5 D.), it ought to cause a distinct inclination of the tongue. This inclination should be to the same extent on the opposite side, if the 50 G. be transferred from one pan to the other.

If the balance is to be used as a balance of precision, an additional weight of 10 G. only ought to be enough to show a distinct inclination of the tongue.

A balance which in such examination does not show the prescribed degree of sensibility must be rejected. If, however, the sensibility is found to be sufficient, the examination as to the justness of the balance is next to be entered upon.

Justness of balance.

10. (*c.*) *Examination as to the justness of a Balance.*—The examination of the justness must comprehend the testing of equality in the weight of the two halves of the balance-beam, in the length of the arms, and in the weight of the two scales of the balance, including the chains, rods, or cords belonging to them. These examinations may be shortened by making use of two equal hook weights which must be suspended directly from the two arms of the lever, and by reading the positions of the tongue from a graduated scale to be properly placed behind the balance.

The simplest, though not the shortest method, is the following:—

(*a, a.*) Cause the balance-beam freely to play without the scales or other appurtenances. If it does not return to a state of equilibrium as a preliminary proceeding, bring

Appendix XI.—*continued.*

the tongue into exactly a vertical position by laying small pieces of metal or some adhesive wax on the beam, or placing a rider of paper or other material near one of the end knife-edges, being the tare of the beam.

(*b, b.*) The scales are then to be hung on the beam of the balance. If the tongue continues to be exactly vertical, change the scales. If the balance still remains in equilibrium the scales are of equal weight, and the two arms of the balance must at any rate be nearly equal.

To make quite sure of this, the examination of the balance as directed under *d, d*, by weighting it up to its greatest bearing capability, is also to be gone through.

(*c, c.*) But if after the suspension of the scales, the tongue no longer continues vertical, the scales are to be interchanged in order to show the greatest inclination.

Then put into one pan either small weights, short bits of paper, or such like until an equilibrium is established, after which change the scales, leaving the tare that has been added in its pan.

If the tongue is then vertical it will show that the arms of the balance are equal, and that the scales only differ in weight from each other to the extent of the amount added, called *tare of the scales*, which is to be compensated for as hereafter directed (see under *f, f*).

But if, on the contrary, upon interchange of the scales the equilibrium of the balance is disturbed, it is clear that the arm of the lever which is inclined downwards is the longer of the two, and it only remains to ascertain what share the unequal weight of the scales of the balances may have in causing the inclination of the tongue.

To ascertain this, so much of the adjusting material contained in one of the scales is to be taken away and put into the other empty scale, until the tongue returns to its position of equilibrium.

If the whole of the additional material has thus to be transferred from one scale of the balance to the other, the two scales will be themselves of equal weight, and the arms of the balance only are unequal, but if a part of the tare remains in the first scale, that scale will be *lighter* than the other to the extent of the remaining part (*scale tare*), and the arms of the balance will also be unequal.

If, after this, that portion of the adjusting material which was transferred to the empty scale is again taken away from it, then this empty scale on the one hand, and the other scale with the remaining adjusting material in it, on the other hand, will be of exactly the same weight, and may now be employed for establishing the equality of arms, which operation is next to be dealt with. For it will at once be shown by suspending these equalised scales, which may be interchanged at pleasure without producing any alteration of inclination, which side of the balance is the longer one; and either by interchanging, or by grinding down one of the three knife edges, equality of arms may be established and will be indicated by the tongue becoming upright.

(*d, d.*) After the equality of arms has thus as nearly as possible been established, by means of the empty scales, as just stated, the process previously described of placing weights upon the scales, corresponding to the greatest load the balance is intended to carry, must be repeated. The weights are now to be exactly counterpoised in the same manner as the scales were previously, and it is only to be borne in mind that instead of interchanging the scales together with the weights, it is simpler to interchange the weights upon the scales, and that any additional weight which may be required to equalise the weights (*weights tare*) be kept entirely distinct from the scale tare.

If in using the unloaded scale a small inequality in the length of the arms of the lever had existed though by reason of the slight inclination of the tongue it could not be perceived, this inequality will now become more perceptible, after the weights corresponding to the greatest bearing capability of the balance have been placed in the scales and counterpoised, because the inclination caused by the inequality of the arms of the lever increases in proportion to the amount of loading.

The adjustment of the arms of the lever, thus appearing to be required, is then to be effected in the same manner as mentioned under *c, c*, by further grinding the knife-edges, and a similar examination by means of equal weights, and if necessary the adjustment must be repeated until the balance is shown by the uprightness of the tongue to be equal armed.

(*e, e.*) After each change of position or further grinding of the knife-edges, the taring of the beams mentioned under *a, a*, must be renewed before the repeated examination of the equality of arms takes place, because every change of situation of the edges may cause an alteration of the beam tare. On the other hand the tared scales and weights may be used without further alteration in all subsequent examinations of the balance.

(*f, f.*) When the balance is proved to be equal armed, the scales must be adjusted, which is to be done either by fixing the scale tare, if it consists of pieces of metal, to the lighter scale by soldering or riveting, or by removing from the heavier scale, by filing, or otherwise, so much of the weight until an equilibrium is established between it and the lighter scale after the scale tare has been taken away from it.

Finally, any inequality that may exist in the weight of the two sides of the beam must be similarly removed by filing the heavier arm.

Errors tolerated in the balance.

11. As notwithstanding every care being taken, it is always very difficult to construct a balance with the arms exactly equal, it is permitted by § 33 of the General Regulations to consider the beam correct and fit for stamping whenever the error does not exceed the limit of sensibility indicated in § 38.

As regards the ordinary balances with equal arms intended for trade use, the limit of error to be tolerated is fixed at $\frac{1}{2000}$ in balances for weighing 5 K. and upwards, and at $\frac{1}{1000}$ in balances for weighing under 5 K. As regards balances with equal arms to be used as balances of precision and medicinal balances, the prescribed limits of error are $\frac{1}{10000}$ for balances weighing over 5 K., $\frac{1}{5000}$ for balances from 5 K. to 250 G., $\frac{1}{2000}$ for balances from 250 G. to 20 G., and lastly, $\frac{1}{1000}$ to $\frac{1}{500}$ for smaller balances.

In order therefore that a balance should be deemed fit for stamping, the inequality of the arms must not amount at the examination in each of the preceding cases to more than $\frac{1}{2000}$, $\frac{1}{1000}$, $\frac{1}{10000}$, $\frac{1}{5000}$, $\frac{1}{1000}$, and $\frac{1}{500}$ of the length of one of the lever arms.

The proportionate amount here specified of inequality of the arms of a balance must be ascertained by trials of weighing, that is to say, by adding to the balance after it has been found not to be in equilibrium, when loaded to the fullest extent of its bearing capability with exactly the same weight in each scale, such additional weight as will produce an equilibrium. The proportion of this additional weight to the load on one side will represent the required amount of inequality of the arms of the balance.

For instance, in the case of a balance of precision constructed to carry 50 K., supposing it to have a load of 50 K. in each scale, the addition of $\frac{1}{10000}$ of the weight, viz., 5 G. must in the first place produce a perceptible inclination as a test of its sensibility; and, secondly, if the balance should not be in complete equilibrium, it must be brought to it by the addition of 5 G., because 5 G. are to 50 K. as 1 to 10,000. If 2 G. should be found sufficient to produce an equilibrium, the proportionate amount of uncorrectness of the balance would be $\frac{1}{25000}$.

Stamping.

12. The balance-beams when found correct are to be stamped as verified, and they are also to be marked with the amount of their bearing capability in case this has not already been done by the manufacturer.

This designation must be placed either immediately upon the balance-beam or upon a copper or brass stud inserted in the beam, and it must indicate the greatest bearing capability in kilogramms by figures with the addition of K.

The stamping (§ 39 of the General Regulations) is to follow, and the stamp is to be affixed upon each arm of the beam without injuring it; if there are two copper or brass studs, one of them will serve for the designation of the bearing capability, and the other for the stamp of verification.

As the compression of the stamp causes an alteration of the beam which may possibly affect its condition of equilibrium, the stamping (and designation) must always take place *before* the last examination and the finer adjustment that may be required.

The verifying officer must of course have satisfied himself previous to proceeding to the stamping, that the balance presented is made in all respects conformable to the prescribed regulations, by means of the official adjustment.

In the case of balances of precision and medicinal balances, a six-rayed star is to be added to the stamp of verification.

In the case of very fine balances, a slight impression of the stamp will suffice.

No compensation, however, is to be given by the verification offices, if in any case injury is done to the balance by the stamping, when being executed in accordance with the regulations.

Balances to be rejected.

13. In the previous Instructions it has been already stated under what circumstances a balance with equal arms is not to be deemed in a fit state for stamping and must consequently be returned, so that the existing faults may be completely obviated.

The verifying officers are, however, authorised to undertake

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such small work of correction for which they may possess the necessary implements, for instance, any little final sharpening of the knife-edges, taring the beams and scales, &c. It is compulsory on them, under § 80 of the General Regulations, to execute any adjusting work of this kind, whenever the errors found in the balances are within the limits of error tolerated in trade use.

On the other hand, it is not permitted to undertake within the verification office itself, more difficult corrections of unsatisfactory balances which may occupy some time.

If a faulty balance that has to be returned, still bears the stamp of a former verification, any such stamp found upon it must be cancelled, and the balance if presented again is to be treated as a new one.

Certificate of verification.

14. For each stamping effected after being completely tested, a certificate of verification is to be delivered.

The form of certificate for balances with equal arms will be found in Appendix *a* and *b* of this Instruction.

2. Balances with Unequal Arms, or Lever Balances.

A.—*Balances having Unequal Arms, with a fixed proportion between the two Lever Arms.*

(See § 34 of the General Regulations.)

In every balance of this description, the relative proportion of the two arms of the lever must be as 1 to 10. In other respects these balances do not materially differ in construction from balances with equal arms.

It will therefore only be necessary to point out, in consequence of the unequal length of the two arms of the lever, to what extent the explanations and directions previously given in respect of balances with equal arms will have to be modified when applied to the former.

With reference to the symmetry and equality of arms of the balance, and the equal weight of the scales (Nos. 5 and 7), as well as to the taring of beams and scales and examination of the equality of arms of the balance (Nos. 8, 10, and 11), the following directions are accordingly to be substituted.

The weight of two scales must also be unequal just in proportion to the inequality of the arms of the lever. A special testing of the relative weight of the two scales need not be undertaken; it is, however, requisite for a balance to be admissible, that it should be made sufficiently apparent to which of the two arms of the lever each scale belongs, so as to prevent the scales from being confounded with each other.

The examination of the scales and the beam is, in the case of balances of this description, to be combined with the inquiry as to how far the directions for the relative proportion of the two arms of the lever are complied with.

The balance is in this respect to be considered as admissible, if, either when in an unloaded state, or when loaded to the fullest extent of its bearing capability with weights on the load side, tenfold those on the weight side, it exhibits a state of equilibrium, or can be brought to this state by the addition of a weight on one side, not exceeding $\frac{1}{1000}$ of the load to which it is added.

The sensibility of the balance is to be deemed sufficient, if, after the balance has been loaded to the full extent of its bearing capability, an additional weight of $\frac{1}{1000}$ of the load, to which the addition is made, will produce a distinct inclination of the tongue.

In other respects all that has been said in the preceding No. of the Instructions, will also be applicable, with slight and obvious modifications, to the examination, adjustment, and stamping of those balances with unequal arms, which have the two arms of the lever of fixed relative proportions.

B.—*Balances with Unequal Arms, the two Lever Arms having variable relative proportions. Steelyards or Roman Balances, &c. and similar Balances, patented.*

(See § 34 of the General Regulations.)

General directions as to construction.

16. The steelyards known under the name of *Roman balances*, consist of a balance-beam with unequal arms which, in like manner as the beam of a balance with equal arms, rests upon steel bearings placed within the fork by means of a steel knife-edge, bevilled on both sides. Another such knife-edge, only with its sharp side turned upwards, is fixed upon the end of the short arm, and bears, by means of a forked socket provided with steel bearings, a hook for hanging on the scale or for directly suspending any object to be weighed.

For ascertaining the weight of the latter an invariable counterpoise weight is used, which is a traversing weight, being suspended to the long arm of the balance-beam in such a manner as to be capable of being moved along it, until the equilibrium of the balance-beam, when it is in horizontal position, is established.

This position of equilibrium is indicated, as in the case of balances with equal arms, by a tongue fastened upon the beam, and playing freely in the fork of the balance.

Lastly, a graduated scale marked with the requisite figures is arranged upon the long arm of the balance-beam, in order to enable the weight of the load hanging at the short arm to be read off at once at each position of the traversing weight.

The balance is often so arranged that for the weighing of lighter or heavier loads a longer or shorter lever arm can be used on the side of the short arm. In such cases, this arm is provided with a second steel knife-edge, bearing a suspending socket and beams similar to that above mentioned, and the long arm of the balance has a second graduated scale upon it, which indicates the weight of a load hanging from the second point of suspension. The several arrangements which may be used in such cases for the suspension of the balance-beam and the accessories, are mentioned among the directions applicable to balances of special construction (see No. 22).

Special conditions.

17. (*a.*) *Solidity.*—It must be ascertained by the method already pointed out that the balance-beam possesses the necessary solidity so as not to show any bending perceptible by the naked eye, when charged with the greatest load which the balance is intended to carry. Smaller bendings will be detected, as in the case of balances with equal arms (see No. 3), when the sensibility is tested.

(*b.*) *Stability.*—The conditions of stability are likewise the same as for balances with equal arms (see No. 4).

(*c.*) *Justness.*—Besides the conditions of justness of the separate parts hereafter to be mentioned, the graduations on the long arm must be regular and exactly corresponding to the load borne by the small arm. On the first examination it will be sufficient to ascertain by the eye, and by measuring the distances between some of the defining lines, that their distances are equal (according to § 34 of the General Regulations, the distances from each other must not be less than 3 mm.). The examination of the justness of the relative lengths of the two arms of the lever is to be effected in the manner hereafter indicated.

(*d.*) *Bearing Capability and Sensibility.*—According to § 34 of the General Regulations, the greatest bearing capability need not be specially indicated, as it is shown by the designation of the divisions upon the graduated scale. That the balance possesses the stated bearing capability may be provisionally ascertained by charging it several times successively with a weight up to the utmost bearing capability, and observing by a thread stretched along the beam that there is no perceptible alteration in the position of the knife-edges. The testing of the sensibility is to be effected by the mode hereafter directed.

Construction of the separate parts.

18. (*a.*) *Balance Beams.*—Besides the qualities already mentioned of solidity, stability, &c., the balance-beam must also possess a perfectly free play in a vertical plane, and must neither touch sideways with its tongue, nor as may happen in the case of balance-beams with two points of suspension, be disturbed in its free play by the second suspending appendages.

Although no special direction is given as to the form of the balance-beam, yet such form is to be recommended in which the vertical cross section forms a parallelogramm with horizontal and vertical sides, such parallelogramms being of equal breadth in the long arm, while their heights may somewhat diminish towards the end of the arm.

Other forms, especially those with the cross-section in the shape of a square placed corner upwards, or either circular, semi-circular, or of a polygonal shape, are indeed less to be recommended on account of their strength being less, the dimensions being the same; they must at any rate be examined with especial care as to their solidity and sensibility.

(*b.*) *Knife-edges and Bearings.*—All the knife-edges and bearings must have a sufficient hardness such as is indicated for balances with equal arms under No. 7, and as regards the knife-edges, their sides should be so sloped as to come in contact with the bearings only with their extreme edges. The knife-edges of the balance-beam at the centre of motion, and at the loading end, as well as the two halves of the knife-edges in the collar of the traversing weight (see under (*d.*)) must stand at right angles to the side-plane of the beam, and a straight line carried through their edges, must form a right angle with the tongue.

(*c.*) *Scale of the Balance.*—If a scale is used for containing the articles to be weighed, and if it is removable, its weight, including the chains, rings, and other appurtenances, serving for suspending it, must either amount to an entire unit marked upon the graduated scale, or its amount must be marked in deep figures, with the addition of K. or lb. upon the front level side of the suspending collar; or the balance must be so constructed as to be in equilibrium

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after the scale, without any load in it, has been hung on, and the traversing weight placed at the zero point of the scale, by which means the just weight of the scale of the balance is to be ascertained.

(*d.*) *The traversing Weight.*—At the two sides of the upper part of the moveable collar, two knife-edges project downwards and rest upon the long arm of the balance-beam, forming a straight line; the collar is continued downwards in the shape of a fork, and the part where the two sides of the fork join carries the traversing weight.

The running weight must be permanently fixed to the moveable collar. If the collar can be slid off the balance-beam, (for instance, for the purpose of laying down a second graduated scale), its weight, including that of the suspending parts and the traversing weight, must, without using any other adjusting material, be equal to an integral number marked on the graduated scale, which weight is to be indicated by deeply marked figures with the addition of K. or lb. upon the front side of the moveable collar deeply marked.

If the moveable collar cannot be taken away from the beam and the traversing weight can be used with both the graduated scales, either by turning the suspending parts or by turning the balance-beam round, the divisions of the scale must in any case commence with 0, so that the justness of the traversing weight, as well as the action of the tongue, which depends upon it, may be tested by placing the moveable collar at 0 of the scale.

No particular shape is prescribed for the traversing weight; a spherical form, however, is to be recommended, and its permanent attachment to the moveable collar must, under all circumstances, be securely made by an eye-bolt, which must be not merely screwed into the weight, but firmly fixed to it.

The moveable collar must be provided with a defining mark, by means of which in every position of the traversing weight, the actual weight of the load may be read upon the subdivisions of the beam. This mark, which passes immediately over the subdivisions when the collar is moved along the beam, must be distinctly defined, for instance, it may be a fine vertical line, a sharp arrow-head, a fine wire across an eye piece, &c., and it must allow the weight to be distinctly read off the graduated scale in every position.

If the collar can be taken off, in order when in an inverse position, to be serviceable for a second graduated scale, it must have only one defining mark to serve for both scales. If the collar cannot be taken off, of course a defining mark is necessary upon each of its sides, supposing the two scales to lie on the opposite sides of the balance-beam.

Mode of testing at the Verification Office.

19. For determining whether the conditions enumerated in the preceding instructions for the serviceableness of a steelyard are complied with, the following mode is to be employed at the Verification Office.

(*a.*) Examination in general.

If the steelyard does not exhibit any of the faults named in § 37 of the General Regulations, it must next be ascertained whether the divisions are regularly marked, whether the knife-edges and bearings are properly hardened and polished, and whether the balance plays quite freely and without friction.

The straight line of the beam is to be ascertained by means of a thread being drawn tight over the knife-edges in such a way that the central knife-edge does not fall *under* the straight line between the two other knife-edges, and that all the three knife-edges lie as nearly as possible in one place. In the case of steelyards with two graduated scales, this examination must take place for the three knife-edges which are used with the two scales respectively.

The balance is then to be charged with the greatest weight marked on the divided scale, and brought into equilibrium, and it is to be ascertained by the relative position of the knife-edges as shown by the straight thread, whether the steelyard possesses the necessary solidity. If any curvature is observed, the steelyard must be rejected.

The *stability* of the balance is to be allowed, if after having been brought into equilibrium without any additional weighing and put into vibration, it returns to the position of equilibrium.

(*b.*) Testing of sensibility.

20. In testing the sensibility, it is to be ascertained whether after the steelyard has been weighted with its smallest as well as its greatest load, it shows a distinct inclination upon the addition of a further weight of $\frac{1}{1000}$ of the load, as specified in § 38 of the General Regulations. In the case of steelyards with two graduated scales, the same proceeding is to be gone through for both sets of divisions.

As the steelyards here referred to are not treated as balances of precision, the proportionate addition of $\frac{1}{1000}$ of the load is applicable to all cases.

(*c.*) Justness.

21. The examination as to the justness of the steelyard must show that the balance when put into oscillation returns to the position of equilibrium, under the following circumstances:—

(1.) After the mark upon the moveable collar to which the traversing weight is attached, has been shifted to the commencing line of the graduated scale.

(2.) After the collar has been moved to other defining lines of the scale (or scales), and the equilibrium has been restored by weights corresponding to the lines of the scale.

It is expedient to extend this testing to at least two defining lines of each scale, one of which should be near the first, the other near the last defining line.

As some errors in the subdivisions cannot be entirely avoided, the balance may be considered just and fit to be stamped if an alteration of $\frac{1}{1000}$ of the load is found sufficient to restore the equilibrium, where it did not previously exist.

Allowable differences of construction.

22. Steelyards or Roman balances, if constructed on right principles, may be allowed though differing in form, and with regard to such other tests than those previously mentioned are required.

In the first place, the following kinds of construction are admissible:

(*a.*) Steelyards which have not only two graduated scales, but *two points of suspension*, and consequently two tongues which point in opposite directions, but only *one loading point*. When used, the balance-beam is reversed so that the side previously pointed *upwards*, now points downwards.

In steelyards of this construction:—

1st. The moveable collar carrying the traversing weight may be pushed off; its total weight including the traversing weight must in this case amount to an entire unit of the weights marked upon the divided scale, and the collar must only have *one defining mark* available for both graduated scales.

2nd. The collar with the traversing weight though not removeable from the beam, may be serviceable also for weighing on the other side of it, the balance being so continued that the collar can be moved to the end of the beam, when the position of the traversing weight is reversed, the fork being made sufficiently wide to be turned over the beam; in this case, the collar is provided with a separate defining mark for each divided scale.

(*b.*) Steelyards which have only *one point of suspension*, but *two loading points*. Such a balance when required to be used for the second divided scale must be turned over so that the arm which at first was at the right hand, now lies to the left.

Here likewise the collar with the traversing weight may be either removeable from the beam or not; in the former case the condition mentioned under *a* in regard to the weight and to *one* available defining mark must be again fulfilled.

A steelyard having a collar which is not removeable from the beam, must under all circumstances begin with 0 at one of the division lines, so that the justness of the balance when unloaded may serve for determining that the heaviness of the traversing weight has remained unaltered (18 (*d.*)).

As regards the actual weight of a removeable scale of a steelyard, it must amount, as already mentioned under 18 *c*, to an entire unit of the weights marked upon the divided scale.

Stamping.

23. After having been tested and found admissible, the steelyard is to be stamped, a stamp being compressed immediately before the first and after the last line of each division, and at the side of the defining mark of the moveable collar.

If the collar with the traversing weight and the scale of the steelyard are removeable from the beam, the parts so removeable must likewise be stamped at the side of the designation of weight they are constructed to bear.

No compensation is to be given by the Verification office for any injury that may occur to the steelyard by impressing the stamp, provided this operation be done in conformity with the Regulations.

Smaller corrections of faulty steelyards are to be effected according to the directions contained in No. 13 with regard to balances with equal arms.

Certificate of verification.

24. For every stamping of a steelyard found on examination to be correct, a certificate is to be delivered, the form of which is contained in Appendix D. of this Instruction.

Appendix XI.—*continued.*

3. *Weighbridges, or larger Weighing Machines.*

(See § 35 of the General Regulations.)

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25. The essential points in the different weighing machines known under the name of weighbridges (*Brückenwaagen*), are that the load scale of the balance is formed by a bridge resting upon bearing levers, the power arms of which are connected, either directly or by means of another lever, with the load-arm of a balance-beam placed above it, and having the weight scale of the balance suspended from its other end.

The weighing of the load is accomplished by using a weight small in comparison with the load, that is to say, one on a reduced scale, or proportional weight, and those weighbridges only are admissible for verification and stamping in which the proportion of the reduced weight is to the weight of the load, as 1 to 10 or 1 to 100.

Of the different kinds of weighbridges, in addition to those of the ordinary construction, and the so-called Strasburg balance, only such others as are known under the following designations, will for the present be admitted :—

1. Pfitzer's patent weighing machine.
2. Pfitzer's decimal weighing machine.
3. Schönemann's weighing machine.

All these weighing machines without exception must be so constructed as to fulfil the following conditions :—

(*a.*) They must indicate the same weight on whatever part of the bridge or platform the load to be weighed may be placed.

(*b.*) They must be provided with arrangements for maintaining a horizontal position of the platform.

(*c.*) As well as for duly ascertaining the weight of the separate parts.

(*d.*) In the case of centesimal balances, they are to be designated as such.

(*e.*) They must be marked with the amount of the greatest load they are constructed to bear.

When any patent weighing machines other than those named are presented at the Verification Office, and it is considered that such balances are in conformity with the requirements of §§ 35 and 37 of the General Regulations, or if the Verifying Office is in doubt as to whether any patent weighing machine presented comes within the description of those for the present permitted, it must report thereupon to the superintending authority.

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26. With regard to Strasburg weighing machines the following parts are to be especially examined :—

(*a.*) The balance-beam with unequal arms; the turning axis of which is formed of knife-edges, resting upon steel bearings fixed upon a pedestal, and which bears at the end of its longer arm the scale for receiving the weights. At the shorter arm are two knife-edges as points of suspension, viz., one at the extreme end upon which the bearing of the lever is suspended, the other lying near the turning point, and serving to support the bearing of the bridge.

(*b.*) The bearing lever disposed horizontally under the bridge, which is to be regularly formed of two iron bars of sufficient strength placed edgeways, and forming the sides of an isosceles triangle. The base of this triangle forms the extreme end of the bearing lever, and there are fixed under its sides two steel knife-edges in a straight line which rest on unmoveable steel bearings and serve as points to support the lever. The lever is suspended at the other end by means of a vertical iron pendant from the extreme end of the short arm of the beam. Sometimes the iron bars of the bearing lever take another form than that of an isosceles triangle, or two pairs of such iron bars are joined together so as to constitute one lever. But the lever must always work so that its fixed support must lie in a line, (the base of the triangle) and the end of its arm at the point of an isosceles triangle of which this line forms the base.

(*c.*) The horizontal bridge intended to bear the load to be weighed. By means of an iron pendant, it is connected, on the one hand, with the short arm of the balance-beam, while, on the other hand, it rests on steel knife-edges turned upwards upon the sides of the bearing lever and fixed so as to lie in a straight line.

(*d.*) A pendulum-indicator, which serves for the right adjustment of the whole apparatus, and is so placed at the front side of the pedestal of the balance-beam that its point stands perpendicularly over a fixed mark when the bridge is horizontal.

(*e.*) Lastly, the tongue for indicating when an equilibrium is established, and the regulator or taring instrument, which serves to compensate the weight of the several parts, so that, when the balance is unloaded, the tongue may show an equilibrium on the balance. These two parts are to be placed on the long arm of the balance-beam.

Construction of the parts of a Strasburg weighing machine.

27. All the before-mentioned separate parts must be carefully worked and constructed of such proportions as correspond with the greatest bearing capability of the patent weighing machine; without on the other hand unduly augmenting the weight of the moveable parts. Special attention is to be paid that all contact between the moveable parts and their fixed supports by means of hardened edges and bearings are so arranged as to permit the freest possible vibrating movement to take place without perceptible friction, and also to prevent these parts anywhere experiencing any side friction from which mischievous consequences might result.

The three points of suspension of the balance-beam, together with the supporting point of the beam, must lie, as in the case of equal-armed balances, as nearly as possible in a straight line, which line, when the balance is in a state of equilibrium must lie in a horizontal position. Likewise the lines of the steel knife-edges, affixed to the bearing lever must lie in one and the same horizontal plane.

Moreover care is to be taken that the two steel knife-edges, on which the back part of the bridge rests, and also the two knife-edges serving for the support of the lever, always lie in a straight line, and that the first-mentioned knife-edges are turned upwards, and the last-mentioned are on the contrary turned downwards.

Sometimes an inverse arrangement is made, for instance, that the steel knife-edges serving for the support of the bridge are attached to its under surface, and the corresponding bearings, on the contrary, upon the sides of the supporting lever. This, however, is a faulty construction producing erroneous results, for which reason weighing machines of such construction are not to be stamped.

Justness of Strasburg weighing machine, how tested.

28. A Strasburg weighing machine must indicate the weight with sufficient accuracy when loaded within its bearing capability, on whatever part of the platform the load to be weighed may be placed (see No. 25). To this end it is requisite that the lever arm upon which the outer iron pendant works, shall bear the same proportion to the lever arm on which the inner iron pendant works, as the arm of the bearing lever bears to the distance of the supporting point of the bridge upon the bearing lever from its axis of motion. The immediate effect of such an arrangement is, that the load lying anywhere upon the platform operates upon the balance-beam in the same manner as if it were attached to the iron pendant which connects the platform with the short arm of this beam.

As it is scarcely possible to ascertain by direct measurements whether these proportions of length actually exist, the following mode of testing is prescribed :—

In the case, for instance, of a decimal balance of 1000 K. bearing capability, the balance must first as far as possible be placed and fixed horizontally, for which object the little pendulum indicator attached to the front of the pedestal is to be used. Then the tongue is to be brought, by means of the regulator, to a perpendicular position in case it should not do this by itself.

After these preliminary operations the weight, say of 300 K., is placed as far forward as possible upon the platform, and 30 K. as a counterpoise upon the scale of the balance; the tongue ought then, after some oscillations of the balance-beam to point straight up as before. If it continues to do so even after the weight of 300 K. has been moved as far as possible to the back end of the platform and to each of the two sides, and if it constantly returns in each case into the same position after the equilibrium has been designedly disturbed, this will show not only that the before-mentioned condition is complied with, but also that the parallelism of all the bearings of the beam lever has been proved.

As a further security, and as a proof that the proportion of the load to the counterpoise remains the same for every loading, the above-mentioned testing is to be repeated with some heavier weights on the platform, say, 700 K. and 1000 K., the counterpoises of which will be 70 K. and 100 K. respectively, and it is only when in each of these testings the same result follows, without the regulator requiring to be moved, that the construction of the relative proportions of the weighing machine are to be considered correct.

Testing of sensibility.

29. Together with the above-mentioned tests, the sensibility of the weighing machine should at the same time be tested. For the balance must be so sensitive according to § 38 of the General Regulations, that a further weight added to the load of $\frac{1}{160}$, or of 6 D. per each K., will produce a perceptible disturbance of the equilibrium. If, therefore, recurring to the previous example the platform is loaded successively with 300 K., 700 K., 1000 K., the weights of 180 G., 420 G., 600 G., respectively are to be added to these loads, after which the tongue ought in each

Appendix XI.—*continued.*

case perceptibly to alter its position of equilibrium. The tongue ought to deviate to the same extent on the contrary side, if instead of the above-mentioned additional weights being placed with the respective loadings of the platform, the weights of 18 G., 42 G., 60 G. respectively, are added to the counterpoise in the scale of the balance.

Stamping and certificate of verification.

30. If the balance fulfils the above specified requirements, it may be stamped.

The stamping is to be effected by the stamp being impressed upon the balance-beam, and the sides of the bearing lever, and also by branding a stamp or letting in a stamped slab of wood on a fit part of the platform.

Smaller corrections of erroneous balances of this kind must be executed in conformity with the directions laid down in No. 13 in regard to balances with equal arms.

No compensation is to be made by the Verification Office for any injury that may be done to the balance through the stamping, if this is executed in conformity with the instructions. Upon the completion of all examinations and stampings, a certificate of verification is to be delivered, the form of which will be found in Appendix E. of the present Instruction.

Centesimal weighing machines.

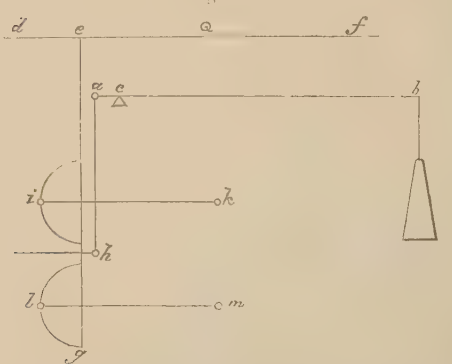
31. In regard to centesimal weighing machines, other provisions than those indicated above will sometimes be required. For instance, two bearing levers of triangular form for supporting the platform, may be so joined that the points of their equilateral sides are turned towards each other and support a junction piece on which rests a second system of unequal armed levers or transfer levers. These last again act by means of iron pendants upon a third lever which bears the scale of the balance upon its other arm.

As the different constructions of centesimal weighbridges cannot be briefly explained, and, moreover, a weighing machine of this kind if faulty could not be corrected by the verification offices, it may suffice to state that the justness and sensibility is to be ascertained on the part of the verification offices by a process similar to that directed in No. 28, regard being of course paid to the centesimal proportion between the load and the weight.

Admissible weighing machines of other constructions.

32. (*a.*) Pfitzer's patent weighing machine (see Fig. 11).

Fig. 11.



This balance consists of an unequal armed lever (*a c b*,) the relative length of the arms (*a c*, *c b*) being fixed according to definite proportions, thus for decimal balances it is to be as 1 to 10. The short arm of the lever (*a c*) is divided in the form of a fork.

For receiving the load (Q) there is a bridge or platform (*d*, *e*, *f*,) which forms a right angle with the vertical support (*e*, *g*). This vertical part of the weighbridge has on both sides the knife-edges (*h*), by means of which the weighbridge is placed in communication with the suspension rods (*a*, *h*,) attached to the short arm of the lever. A load placed upon the bridge would thus push the lower end (*g*) of the angle piece towards one side, but at a higher point (*i*), the push would be towards the other side, thereby placing the suspension rods in an oblique position. This however is obviated by means of three stays and cramps of equal length, viz.: two of *i*, *k*, and one, *l*, *m*, which runs parallel, the ends *k* and *m* being attached on the one hand to fixed points of the frame, and on the other hand to fixed points of the vertical angle support of the bridge.

It is essentially requisite for the correctness of this balance that care should be taken to place all the knife-edges of both the lever and the angle support exactly parallel, in default of which, if the load is put at different points of the bridge, the result would be a difference in the weight indicated. Special attention is therefore to be bestowed on this point when the weighbridge is tested.

Pfitzer's decimal weighing machine.

33. This balance resembles in its external form the Strasburg weighing machine, but differs from the latter in this respect, that the bridge has four points on which its weight rests, and it is supported by means of these on four bearing levers, the power arm of each being 10 times as long as the load arm. The power arms are all attached to a single coupling rod suspended at its upper end from an equal armed balance-beam, which on the other end bears the weight scale of the balance.

Schönemann's weighing machine.

34. Schönemann's weighing machine resembles Pfitzer's patent machine, described under No. 32 in so far as the parallel position of the bridge is effected by stays and cramps, and that separate bearing and connecting levers are dispensed with.

But as there are a great many different modes of constructing these kind of balances, with respect both to the position of the bridge, and the number and arrangement of the stays, it is not possible to give an accurate description of them.

Meanwhile, as not only in Schönemann's weighing machine, but also in Pfitzer's patent machine, the exact parallelism of all the knife-edges (see No. 33) is an essential requisite for their justness, and as any fault in the parallelism cannot conveniently be corrected by the verifying office, it will suffice particularly in the case of Schönemann's balance that the testing be made with special care under different positions of the load upon the bridge.

With regard to the kinds of weighing machines mentioned under Nos. 32 and 34, the testing of the conditions which are generally requisite in their construction, viz.: solidity, free play, hardness of the edges, and bearing, &c., as also of their justness and sensibility is to be carried out in the same manner as with regard to the Strasburg weighing machine.

Not to be adjusted by verification offices.

35. On account, however, of the difficulty of adjustment, no correctness of errors found in weighing machines of this kind are permitted to be undertaken by the verification offices.

4. *Balances with Pans above the Beam, or Platform Balances.*

(See § 36 of the General Regulations.)

Platform balances; their general construction.

36. Platform balances, or those which have the pans placed above the beam, are balances with equal armed levers, the load consequently being weighed by means of a counterpoise of equal weight, but which differ from the ordinary balances with equal arms from the circumstance that the load scale lies above the lever mechanism, and in most cases the weight scale also when the two pans are horizontal and side by side. As the more elevated position of the load in this kind of balance may easily occasion friction at the points of vibration, and variation in the weight indicated when the load is placed upon different parts of its pan, it is directed by the General Regulations that these balances shall be admissible only under the following conditions:

(*a.*) That notwithstanding the weight or the load is moved to different parts of the pans of the balance, there shall be no discordance in the weight indicated.

(*b.*) That even under the most unfavourable position of the weight and the load upon the pans, the balance shall still show a sensibility within the prescribed limits.

(*c.*) That no inaccurate indication shall result from the position of the pans being not quite horizontal.

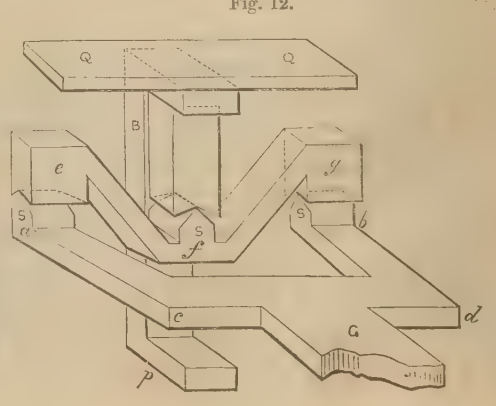
For the present only those platform balances which are of the following constructions are admissible for stamping (see No. 25 at the end).

1. *Schickert's* platform balance;
2. *Pfitzer's* balance with the pans placed above;

which are to be described as follows:—

Construction of special Balances.

Fig. 12.



Appendix XI.—*continued.*

Schickert's platform balance.

37. (*a.*) Schickert's platform balance (Fig. 12). The principle of this balance is the same as that of equal armed scale beams, this balance differing only in the method of suspending the scales upon the end knife-edges. The ends of the beams are in the shape of a fork, and both branches *a*, *c* and *b* *d* of the fork *g* bear knife-edges S S′, which lie exactly in a straight line. Upon these edges rests, in the first place, by means of bearings a V-shaped connecting piece *e*, *f*, *g*, in the middle of which is a knife-edge S, turned upwards and falling in the prolongation of the balance-beam, consequently standing in a line perpendicular to the end edges. The pan of the balance, Q, rests freely upon this last-mentioned knife-edge by means of a bearing socket which is attached to a brace like piece B, at the lower end of which is a heavy weight, *p*. The centre of gravity of this weight lies exactly in a perpendicular line under the knife-edges of the connecting piece, and serves to secure the scales against turning over, and generally to ensure the stability of the balance.

Fig. 13.

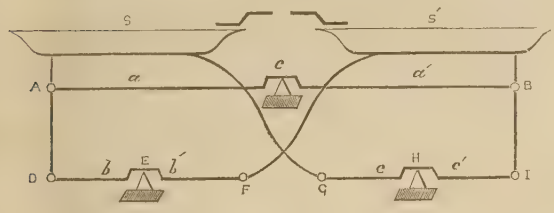
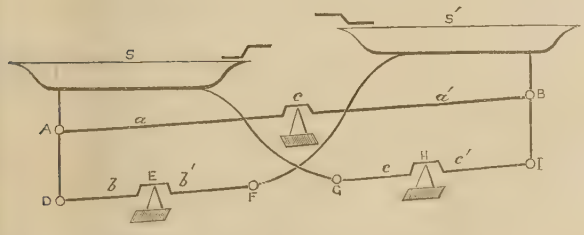


Fig. 14.



Pfitzer's platform balance.

38. (*b.*) Pfitzer's platform balance (Figs. 13 and 14). The principle of this balance is that of a scale beam with equal arms A, C, B, oscillating simultaneously with two equal-armed guide beams D, E, F, and G, H, I, in the same vertical plane, each of these guide beams being of about half the length of the principal beam. Upon each of the two ends of the principal beam which terminate in the shape of a fork, and are provided for the purpose with two knife-edges all lying in one plane, rests a pan, or a platform or table with a pan fixed on it. Each pan is marked respectively as S and S′, thus having two points of support by its connection with the forked extremities of the scale beam underneath. Each end of the principal beam is also connected in an appropriate manner by knife-edges and bearings with the extremity of the guide beam that lies vertically below it, and the other extremity of each guide beam provides a third point of support in a similar manner to the pan resting upon the end of the scale beam opposite to it. This threefold support and the connection of each pan with the lever mechanism is an indispensable condition for admitting this scale for verification.

If all the three beams of the balance are equal armed ($a = a'$, $b = b'$, $c = c'$,) and if also the two guide beams are themselves equal in length, each table or pan will constantly move in a parallel direction with the other table or pan, and the load at whatever point of the pan it may be placed will act just as though it pressed directly upon the extremity of the scale beam under it.

Testing of platform balances.

39. In consequence of the complete mechanism of the platform balances, they are not to be tested as to the faults any part may have with a view to their correction, but the testing is merely to be directed to the solidity of the construction and the justness and sensibility of the balance. If any faults are detected in these respects, the balance is to be returned uncorrected, and it is left to the owner to have it corrected elsewhere.

General testing of the construction.

40. The balance is first to be loaded to the utmost of its bearing capability (which must be marked upon the balance), and by counterpoising brought to an equilibrium; it is then to be unloaded and this operation is to be several times repeated, by which it may be proved whether the balance always returns to a position of equilibrium when loaded.

The balance after having been put into oscillation must always return to its resting point in the same exact position. Lastly, a small additional weight placed at one time with the load, and another time with the counterpoise, must cause an equal inclination on the opposite sides of the balance.

These trials must be repeated after the balance has been placed in a position somewhat deviating from the horizontal.

Justness and sensibility.

41. For testing the justness, counterpoises are to be used as in the case of balances with equal arms. A load is to be brought into equilibrium by counterpoising with weights, and by interchanging load and weight it is to be ascertained whether the position of equilibrium is in any way effected.

This testing must also take place once under the greatest loading of the balance, and this process is to serve at the same time for testing the sensibility, which according to § 88 of the General Regulations must be so great that in balances constructed to carry a load up to 5 K. an additional weight of 5 D. per kilogram ($= \frac{1}{2000}$ of the load), or in balances made to carry less than 5 K. an additional weight of 1 G. ($= \frac{1}{1000}$ of the load) will produce a perceptible inclination. Lastly, the indications of the balance must remain the same to whatever part of the pans the load or weight may be changed.

Stamping and certificate of verification.

42. All balances found on being tested to be admissible are to be stamped, the stamp being impressed upon each balance-beam.

No compensation is to be given by the verifying office for any injury that may occur to the balance by impressing the stamp, if done according to the instructions.

For each testing and stamping a certificate is to be delivered, the form of which is contained in Appendix G. of the present Instruction.

Temporary regulations.

If old balances upon which the designation of the bearing capability cannot be affixed are stamped in conformity with the directions of § 91 of the General Regulations, the following note is to be made in the certificate of verification "according to § 91 without designation of bearing "capability."

Forms of Certificates of Verification for Balances.

Certificates of verification.

44. If several specifications are contained in one form of certificate, the specifications not required must be cancelled when the form is filled up.

(*a.*) *Verification Certificate* VIa., *No.* , *for Balances with equal Arms for Trade Use.*

For Mr. in .

The under-mentioned balances with equal arms for trade use, having been found correct within the limits of error tolerated, have been verified, and the following tariff fees are charged.

Number of Balances.	Bearing Capability.		Material of the Beam.	Tariff Fees.					
	Greatest.	Smallest.		For Verification.			For Adjustment.		
				Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

Verification Office at , the 18 .

(*Signature of Chief Verifying Officer.*)

Stamp.

(*b.*) *Verification Certificate* VIb, *No.* , *for Balances of Precision and Medicinal Balances.*

As above, with the exception of inserting the proper description in the text.

(*c.*) *Verification Certificate* VIc, *No.* , *for Decimal Balances with unequal Arms.*

For Mr. in .

The under-mentioned decimal balances with unequal arms having been found correct within the limits of error tolerated, have been verified, and the following tariff fees are charged.

Bearing Capability.		Tariff Fees.					
Greatest.	Smallest.	For Verification.			For Adjustment.		
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.

Verification Office at , &c.

Appendix XI.—*continued.*

(*d.*) *Verification Certificate* VId. *No.* , *for Steelyards or Roman Balances.*

For Mr. in .

The under-mentioned steelyards having been found correct within the limits of error tolerated, have been verified and the following tariff fees are charged :—

Construction of Balance.	Bearing Capability.	Length of graduated Scale.	Tariff Fees. For Verification.	Tariff Fees. For Adjustment.
			Th. Sgr. Pf.	Th. Sgr. Pf.
With one graduated scale - With two graduated scales -	With the first graduated scale.			
With removable traversing collar of weight - -	from lb. K. to lb. K.			
With traversing collar not removable - -	With the second graduated scale.			
With removable balance scale of weight	from lb. K. to lb. K.			
With balance scale not removable or with a hook.				

Verification Office, &c.

(*e.*) *Verification Certificate* VIe, *No.* , *for Strasburg Weighing Machines.*

For Mr. in .

The under-mentioned decimal (or centesimal) weighing machines on the Strasburg system, having been found correct within the limits of error tolerated, have been verified, and the following tariff fees are charged :—

Bearing Capability.	Remarks.	Tariff Fees. For Verification.	Tariff Fees. For Correction.
K. or Cwt.		Th. Sgr. Pf.	Th. Sgr. Pf.

Verification Office at , &c.

(*f.*) *Verification Certificate* VIf, *No.* , *for Weighbridges or large Weighing Machines.*

For Mr. in .

The under-mentioned decimal (or centesimal) weighing machines having been found correct within the limits of error tolerated, have been verified, and the following tariff fees are charged :—

Description.	Bearing Capability.	Remarks.	Tariff Fees.
	K. or Cwt.		Th. Sgr. Pf.
Pfitzer's patent weighing machines.			
Pfitzer's decimal weighing machines.			
Schönemann's weighing machines. &c.			

Verification Office at .

(*g.*) *Verification Certificate* VIg, *No.* , *for Balances with the Pans above the Beam or Platform Balances.*

For Mr. in .

The under-mentioned balances, with the pans over the beam, or platform balances, having been found correct within the limits of error tolerated, have been verified, and the following tariff fees are charged :—

Number of Balances.	Description.	Bearing Capability.	Remarks.	Tariff Fees.
		K.		Th. Sgr. Pf.
	Schickert's - Pfitzer's - &c.			

Verification Office at .

Return certificates and conditional certificates are to be drawn up in the forms specified under No. 8 of the first section of the Instructions.

VII.—*Instruction for verifying Alcoholmeters and Thermometers belonging to them.*

(See §§ 40–42 and 92 of the General Regulations.)

Alcoholmeters.

1. (*a.*) *Alcoholmeters.* — The complete scale of per-centage, according to Tralles, has two principal points, the lower of which, or zero point, corresponds to distilled water without mixture of alcohol, the upper point, designated as 100, to pure alcohol absolutely free from water.

An instrument of this description to be admissible must have the divided scale of per-centage at least 165 mm. in length between the principal points; if it contains a portion only of the scale, the separate subdivisions must not be smaller than the corresponding divisions for a complete scale of per-centage admissible for verification.

Their construction.

2. Instruments presented for verification must be in conformity with the directions of § 40 of the General Regulations, and whether they have the full scale or only a portion of it, *their upper end must always be open,* that is to say, not closed with the blow-pipe. The scale must be provisionally inserted in its proper place, without being fixed, so as to allow it to be taken out for the purpose of stamping. It must also be marked as Tralles' scale, with the name and address of the manufacturer of the instrument.

Use of testing glass cylinders.

3. For alcoholmeters several testing glass cylinders with a stand are requisite, for holding distilled water and at least five different mixtures with spirits of wine; the mixtures must correspond with the strength indicated upon the instrument to be tested, at nearly equal intervals from the lowest degree marked on the scale, up to about 96 per cent. of alcohol. It is desirable to choose cylinders of large size, in order to diminish as much as possible the effect of a change of temperature.

Mode of testing.

4. As to the mode of testing, both the alcoholmeter to be verified and the standard instrument, after having been carefully wiped with a clean cloth, are to be cautiously immersed in the test mixtures, and the per-centage indicated by both instruments is to be compared. The indications of the instruments must be read *under the surface* of the liquid, because the surface of the liquid rises by capillary attraction on the outer surface of the tube.

It is not required that the mixtures contain entire per-centages of alcohol, provided that with each mixture the indication of the instrument to be tested accords with that of the standard instrument.

No notice is to be taken of differences not exceeding a quarter per cent.

When admissible.

5. If the scale of an alcoholmeter has been found admissible by this test, the absolute weight in milligramms of the instrument is to be ascertained. The scale is then to be removed, and the stamp as well as the mark of its weight affixed to it; after which the scale must be replaced, and the instrument is ready to be handed over to the owner for the finishing process.

It is here to be borne in mind that, according to § 92 of the General Regulations, the weight must, from the 1st January 1870, be indicated, without exception, in milligramms.

Finishing process.

6. The finishing process consists in the final fastening of the paper scale within the glass tube, which is best done by means of good isinglass, and in closing the upper tube-end air tight by fusion. The fastening of the scale with sealing-wax or shellac is improper, because at higher degrees of temperature a softening of the wax and displacement of the scale may ensue, and it is therefore prohibited.

Final test.

7. The instrument thus finished must once more be presented for final testing, which is now to be confined to examining whether the specific gravity still corresponds to that indicated upon the scale, and whether the scale is at the proper place. These points are to be ascertained by the instrument being immersed, together with the standard, in a testing mixture.

If all is found right in these two respects, and the scale is also properly fixed, the certificate of verification is to be delivered, together with a copy of the tables of reduction, and directions for their use annexed to them.

Appendix XI.—*continued.*

Thermometers.

8. (*b.*) *Thermometers.*—Only those thermometers which are in conformity with the requirements of § 40 of the General Regulations, and have the casing tube open above, and their scale marked with the name of the manufacturer, are receivable for verification.

Testing.

9. The testing of a thermometer consists in the following operations:—

(1.) The thermometer is to be placed, together with the standard thermometer, in a vessel with hot water, which should be repeatedly stirred during all the time, and the march of both instruments during the re-cooling is to be carefully observed. It is essential that the temperature of 12⅔° R., upon which the divided scale of the alcoholmeter is based, should be marked with a red line.

(2.) The correctness of the zero point of the scale is then to be tested by placing the bulb of the instrument in a proper quantity of ice pounded small, or into snow, when both are in a melting state.

Glass vessels to be used.

10. For this purpose glass cylinders, such as are mentioned in No. 3, are to be used; but these vessels must be placed upon a wooden frame covered with felt or other material that is a bad conductor of heat, and the frame must be provided at the bottom with three wooden knobs, and stand hollow upon them, with a clear space underneath.

When admissible for stamping.

11. If on comparison with the standard thermometer the deviations, if any, do not exceed ¼°, and the thermometer under examination is in other respects found to be admissible, it is to be stamped in the same manner as directed in § 41 of the General Regulations. It is then to be returned to the owner to be finished off, that is to say, for the definite fixing of the scale and closing of the casing tube by fusion.

Final testing.

12. After the thermometer has thus undergone the last finishing process, and has, upon being once more compared with the standard thermometer, been found correct, the certificate may be delivered which should specify the extent of the scale and its length in millimeters.

Thermo-alcoholmeters.

13. (*c.*) *Thermo-alcoholmeters* which are in conformity with the conditions laid down in § 40 of the General Regulations, are tested according to the directions previously laid down under (*a*) and (*b*), except that a third delivery for testing has to take place, as explained in the following remarks.

When first delivered the thermometer is to be tested, and eventually stamped, in the manner prescribed under (*b*).

The thermometer must be a second time delivered to be tested after the final fixing of the thermometer scale, and after the glass casing tube has been provided at the upper end with a thin spindle, and the scale of the alcohol meter provisionally placed in it. Then the second testing of the thermometer in pursuance of No. 12, and the testing of the scale of the alcoholmeter in conformity with the directions under (*a.*) are to be proceeded with; and the scale is eventually to be stamped and marked with its weight.

For the third time it must be delivered for testing after the alcoholmeter scale has been finally fixed and the whole instrument closed by fusion; then the final testing mentioned under No. 7 is to be completed, and if it gives a satisfactory result, the certificate, together with the tables of reduction and directions for their use, may be delivered.

Certificates of verification.

(*d.*) *Certificates of Verification.*—Two different forms, according to the circumstances of the case, are to be used for these certificates, viz.:—

Certificate VII. { (*a.*) *No.* *for an Alcoholmeter,* / (*c*). *No.* *for a Thermo-alcoholmeter.*

For Mr. in .

One { alcoholmeter / thermo-alcoholmeter } with a Tralles scale, having been found admissible, has been verified, and the following tariff fees are charged:—

At	Extent of Scale. The per-centage Scale from % to %.	Extent of Scale. The Thermometer Scale from °R to °R.	Length of Thermometer Scale.	Its Weight in Milligrammes.	Tariff Fees.
Spindle 1					Th. Sgr. Pf.
Spindle 2					
Spindle 3					
		For 1 copy of tables of reduction -			
		Total - - -			

All the scales are marked with the No.

Name of Verification office at the .

Stamp.

Signature of the Chief Verifying Officer.)

The certificates under (*a*) and those under (*c*) must have distinct current numbers.

A certificate which relates only to alcoholmeters must have the columns referring to thermo-alcoholmeters cancelled, and *vice versâ*.

Certificate VII*b. No.* , *for Thermometers.*

For Mr. , in .

A thermometer made by , and found admissible, has been stamped, and at the upper end of the scale marked with the No. The scale extends from °R. to °R., and is in length millim.

Verification fees charged, etc.

Name of verification office at , the .

Stamp.

(*Signature of Chief Verifying Officer.*)

VIII.—*Instruction for Verifying Gas Meters.*

(See §§ 43–48 and 92 of the General Regulations.)

Gas meters admissible for verification.

1. Only those new gas meters are to be received for testing by the verification offices that fulfil the conditions stated in §§ 43–46 of the General Regulations, and which have the outer case of the registering works not yet closely fastened up.

Arrangements for testing such volumes.

2. Besides the dials serving for properly noting the volume in cubic meters, the registering part of the instrument must be provided for the purpose of testing with an arrangement by which very small volumes of gas passed through the meter can be indicated down to such a quantity as may be required for more accurately determining any existing errors.

Construction of the meter.

3. The testing must apply in the first place to the proper construction of the registering part of the meter, that is to say, it must be ascertained whether the figures marked upon the dials really correspond with the actual revolutions of each part of the mechanism, and whether these parts are properly executed and are so constructed as not to be liable to any displacement from outside after the closing of the outer case.

Cubic measuring apparatus.

4. The further examination is to be made either by means of a cubic measuring apparatus, so that an accurate measure of atmospheric air may be passed through the gas meter and observing the indications of the registering dial; or else, as in the case of larger gas meters, when the above-mentioned apparatus cannot be used, comparison may be made of the quantity registered by the gas meter, to be tested with that registered by a standard gas meter, after passing through both in the same space of time equally large quantities of gas.

With respect to both these descriptions of testing apparatus, the condition stated in § 70 of the General Regulations is applicable, viz., that they are not to be used by the verifying offices until they shall have been previously examined by the superintending authority and pronounced to be correct. This condition applies also to the use of any cubical measuring apparatus and standard gas meters by verifying offices beyond the limits of the district of verification.

In all the former kind of apparatus which are now in use, it is very material that the scales now employed should be altered in accordance with the change of the unit of registration.

Cubical gas measurers.

5. The cubical measuring instruments for testing gas meters in use of late are, as to their essential points, of the following construction:—

In a cylindrical reservoir of water is a cylindrical bell either of zinc plate, tinned iron plate, or copper plate, which is suspended from above by a belt; it has a strengthening rim both above and below, and on the lower rim there are two guide pulleys placed diametrically opposite to each other, and running on vertical rails which are attached to the interior of the water reservoir. Two other guide pulleys are fixed on the upper rim, at an angle of 90° with the lower pulleys, the vertical guide rails of which are placed upon the rim of the water reservoir, and are properly fixed at their upper end. By this arrangement the parallel movement of the bell is secured.

The belt which holds the bell up passes vertically along a guide pulley, and then horizontally over a second pulley, and from hence vertically down to the weight holder, upon which counterpoise weights are placed either to raise the bell or to give it during the testing just such a prepon-

Appendix XI.—*continued.*

derance of weight that the air enclosed in it is subject to the regulated pressure equal to the height of 40mm. of water. In order to render this pressure independent of the diminution of weight which the bell suffers through the increasing hydrostatic influence at deeper immersions in the water, small weights of lead are attached to the belt in such a manner that by passing over the first guide pulley on the sinking of the bell, the amount of the counterpoising weight is diminished and the requisite compensation is effected.

Attached to the bell is a graduated scale, which by means of a pointer placed at the rim of the water reservoir, shows the depth of immersion of the bell, and thereby the quantity of air expelled from it.

The water reservoir is provided at the bottom with an outlet cock, for the purpose of letting out and renewing the water from time to time.

In the middle of the water reservoir is a tube for conducting air, the upper opening of which lies in the plane of the external rim, and which, passing through the bottom, then ascends at one side of the reservoir, and at a proper height bends over horizontally; it is furnished with a tap serving three different purposes, and which in its several positions may be used either for drawing in air, for the filling of the bell, or for establishing a communication between the bell and the gas meter to be tested, or for preventing the escape of air.

For this latter purpose, however, a separate stop-cock is generally provided at the horizontal end of the tube, and with it there is a water gauge for ascertaining the pressure of the air in the bell.

The tap, which acts in three ways, or the separate stop-cock, is conveniently provided with a self-acting contrivance by means of which the cock is suddenly closed and the escape of air stopped the moment the bell has descended to a point corresponding with the end of the scale. This is effected by a screw placed at the upper rim of the bell, which acts upon the handle of the cock and regulates it.

The end of the air tube stands at such a height over the working table placed close to the water reservoir that it can easily be connected by means of gutta-percha pipes with gas meters placed upon the working table.

At the end of the working table is a blowing-off pipe, which at one end can be connected by a gutta-percha pipe with the outlet of the gas meters, and on the other hand is provided with a blow-cock, by which the rate at which the air issues can be regulated, and which is also connected with a water gauge for ascertaining the pressure of the air that goes out.

Graduated scale.

6. The graduated scale which is attached to the bell must be determined from ascertaining the cubic contents of the bell by filling it with water, and the subdivisions in the same manner, so as to allow at least single litres to be read off. Now in a bell having a diameter of 7 decim., or 8 decim., one litre will correspond with a difference in the height of the bell of about 2·61 mm., or 1·99 mm. respectively; consequently, if the bell is to be used for measuring 500 L. or half a cubic meter, the measuring part of its height will be about 1·3 meter, or 1 meter; or, if the contents are to be 600 L., about 1·57 meter, or 1·2 meter.

Mode of using the gas-measuring apparatus.

7. The mode of proceeding in the use of the gas measuring apparatus is as follows:—

The bell which is to contain air is raised high up, and by adding or subtracting weights after the stop-cock is closed, the pressure upon the air enclosed is so regulated that the water gauge shows a pressure equal to the height of a column of water of 40 mm.

The gas meter to be tested is placed upon the surface of the working table, which can be made exactly horizontal, if provided with a pendulum index, and the pointer be made to indicate the proper position by a defining mark. The counting apparatus is next brought to O, and the inlet pipe is connected with the end of the tube of the bell, and the outlet pipe on the other hand with the blowing-off pipe, the connection being made air tight. The gas meter is then to be so far filled with water until it begins to flow out from the outlet pipe, the stop-cock of the bell is kept open as long as the passing through of the air allows, and until the drum of the gas meter has turned round at least once (see No. 8), and then the blowing-off cock is closed.

Water is then again let into the gas meter to such a height as is requisite for ordinary use, and the instrument is to be allowed to remain thus for some time, for the purpose of ascertaining whether any change in the position of the bell occurs or not, and thus to determine the density.

If any sinking of the bell follows, it is first to be ascertained whether the connection of the pipes is air tight, and it is only when it is found not to be faulty in this respect that the existence of any defect in the gas meter is to be assumed.

If the connecting pipes and the gas meter to be tested are found to be air tight, the blowing-off cock is to be slowly opened so that the escape of the air takes place at the same rate of speed as that required for the gas meter to be tested (see No. 8).

When this speed has been attained, the regular comparison may be proceeded with.

The outlet cock and the stop-cock are now to be closed, the bell filled, if necessary, to its full capacity with air, and the exact position of the scale on the air bell, as well as that of the registering apparatus of the gas meter, are to be noted, including, of course in the latter an observation of that portion by which the smaller spaces, according to No. 2, are to be measured. The stop-cock as well as the blowing-off cock are then to be opened, and the requisite quantity of air is allowed to pass through the gas meter. During the passage of the air the position of the pressure gauge at the stop-cock as well as that at the blowing-off cock is to be observed and noted, and at the end of the observation the position of the scale of the air bell, and the indication of the registering apparatus of the gas meter are also to be noted. The difference of the reading at the bell scale at the beginning and at the end of each observation shows the quantity of air driven through the gas meter, and the difference of the readings of the registering apparatus shows the quantity of air registered by the gas meter. The latter number must not differ more than two per cent. from the former (see § 47 of the General Regulations), if the gas meter is to be considered admissible for stamping.

If,—

$$I = 4 \text{ L and,}$$
$$V = 0{\cdot}48 \text{ cubic meters } (= 480 \text{ L})$$

are marked upon a gas meter, the drum should make $\frac{480}{4}$ or 120 revolutions per hour, being equal to two revolutions per minute, and consequently no longer space of time than about one minute is necessary for the preliminary revolution of the drum (see No. 7), the object of which is to fill all the divisions of the drum with air of the same pressure as that of the air in the bell.

For the proper regulation of the blowing-off cock, with a view to the testing of such a gas meter, care is to be taken that the quantity of the air passing through amounts to 480 L. per hour, and 8 L. per minute; and the opening of the cock must therefore be regulated so that the air bell descends at the rate of about 8 L. per minute, or the same quantity is indicated by the counting apparatus.

Accuracy of observation requisite.

9. The observation of the position of the pointer on the scale, and the position of the counting apparatus must be made *with such a degree of accuracy* as to avoid errors which, in conjunction with other unavoidable sources of error, (for instance, the diminution of the pressure of the air consequent upon the resistance of the revolutions of the drum, &c.,) may easily give rise to discordances that might cause the rejection of a gas meter really admissible.

No notice is to be taken of small alterations of the height of the pressure gauge, as a quantity of air of the capacity of 1000, measured off in the air bell at an indicated pressure of 40 mm., resolves itself into a quantity of about 1004, under the ordinary pressure of the air, and consequently the difference resulting therefrom only amounts to about $\frac{1}{10}$ per cent. for every variation of 10 mm. in the height of the pressure gauge.

An error of 1 mm. in the reading at the bell scale in a bell of the diameter of 8 decimeters (see No. 5), amounts to an error of half liter in the total quantity of air, that is to say, to half per cent. for every 100 liters of air passed through. Care must therefore be taken that the quantity of air passed through the gas meter be of such an amount as to prevent this error from being of any influence upon the result.

Of course, an error of the same amount as that now mentioned in the reading of the counting work will have the same effect; care must therefore be taken that at the end of every observation the several parts of the counting apparatus working upon each other, and transferring the action are in the same relation to each other as at the commencement of the observation, which must be the case if the air operating upon the drum of the gas meter has constantly the same pressure.

Lastly, an error with regard to the indication of the counting work may result from the transfer of the movement from the axis of the drum being effected by wheels, the divisions of which are not perfectly uniform, or from the dial serving for the registration of the smaller quantities not being uniformly divided. This fault may be reduced to an infinitesimally small amount, by a greater number of revolutions of the axis of the drum, and the faulty construction in question may be made innocuous by bringing

Appendix XI.—*continued.*

the observation to a close when the pointer of the disc which registers the smallest quantities stands at the same place as at the beginning of the observation.

uantity of r to be assed.

10. From what has been said in No. 9 it appears to be not always necessary in the case of smaller gas meters to pass the entire contents of air in the bell through the drum, and especially if during the observations everything proceeds regularly.

But if upon comparing, as specified in No. 7, the volume of air passed through, and that registered by the counting work, a difference is shown which approaches or exceeds the error tolerated, the observation must be repeated with a larger volume of air passed through.

In the case of larger gas meters, a single emptying of the drum will not be sufficient, but the blowing-off cock and the stop-cock having been previously shut off simultaneously, the bell must be filled anew, and its contents of air driven through the gas meter under the conditions previously indicated in No. 7; and this operation must be repeated until the total volume of air pushed through corresponds with that specified as requisite at the conclusion of No. 7.

esting veral gas eters at ce.

11. Although it is more desirable to test each gas meter singly, nevertheless, in order to shorten the work of testing, several gas meters of the same size and made by the same manufacturer may be tested at once. This is to be done by the quantity of air used for the measurement being transferred from one of these gas meters into another, and only escaping from the last through the blowing-off pipe into the atmosphere.

But the number of gas meters tested together is not as regards the smaller kinds to exceed five, and as regards the larger ones must be restricted to a less number.

As during this operation the pressure of the air diminishes rom the first to the last gas meter, this last must be tested by a somewhat greater number of revolutions than the first. The difference, however, forms only an insignificant part of the error tolerated as explained in No. 9.

If any irregularities are observed, the testing of the several gas meters must be repeated singly. The same course must be followed with regard to those gas meters, which in such a testing show an error nearly amounting to that tolerated.

Vet and ry gas eters.

12. The preceding directions for testing are applicable both to wet and dry gas meters, with the self-evident exception that in the case of the latter the directions concerning the water level are to be disregarded.

But dry gas meters on the other hand must be submitted to a second test, in which the air must be passed through at a much slower rate, and so that about thrice the time is to be taken up in passing an equal quantity of air.

If, however, the two observations thus made with such a gas meter give nearly the same result, and the error in the registering, if any, lies within the limit tolerated, a dry gas meter may be considered admissible for stamping.

The object of this double testing is to ascertain whether the leather diaphragms employed possess the requisite impermeability.

tandard as meter.

13. The use of a standard gas meter for testing a larger gas meter is only allowed exceptionally, that is to say, in the case of the employment of a cubic measuring apparatus not being practicable.

The standard gas meter to be employed in such a case must have been verified in the most careful manner by the superintending authority as to the accuracy of its registering apparatus, and the error, if any, must be noted so as to allow of its being taken into account in the subsequent comparison with the gas meter to be tested.

In testing of a working gas meter by means of a standard gas meter, it is to be recommended that two observations of longer duration should take place, one with gas passed first through the standard gas meter, and then through the gas meter to be tested, the other with the gas passing first through the latter and then through the standard gas meter. The mean results thus obtained are to be compared with each other, and on the difference that may be found to exist, the decision as to the admissibility of the gas meter will depend.

djustment f gas me- ers.

14. No corrections of gas meters are allowed to be executed by the verification offices.

The supplementary work mentioned in the tariff comprises soldering on the casing, affixing studs for stamping, fixing the lead, and such like.

Their stamping.

15. In stamping gas meters the directions contained in § 48 of the General Regulations are to be followed.

The impression of the stamp may be made either in tin solder or in sealing wax; gas meters which are to be marked with the amount of V. (see No. 17) must be stamped upon a small bit of tin.

Certificate of verification.

16. According to the case, (see No. 17) the following forms are to be used for certificate of verification.

1. For gas meters registering in metric measures.

Certificate VIII. { (*a.*) No. *for a wet gas meter.* (*b.*) No. *for a dry gas meter.*

For Mr. in .

A { wet / dry } gas meter, made by in .

Bearing the number of the maker for which the measuring capacity is stated to be I = ... L, the largest volume of gas which it is constructed to pass per hour being V = ... cubic meters, and which registers in cubic meters, has been verified and stamped, the indication of the counting work having been found on testing to be correct within the greatest error tolerated of two per cent., and the following tariff fees are charged, viz.:—

	Th.	Sgr.	Pf.
For testing - - -	„	„	
For supplementary work -	„	„	
Total charge - -	„	„	

Verification Office at , the .

Stamp.

(*Signature of Chief Verifying Officer.*)

2. For gas meters of which the old registering measure has not been altered:—

Certificate VIII. { (*c.*) No. *for a wet gas meter.* (*d.*) No. *for a dry gas meter.*

For Mr. in .

A { wet / dry } gas meter, the counting apparatus of which continue to register in cubic feet, and which is provided with the following designation:—

(insert the designation.)

has been stamped in conformity with § 92 of the General Regulations, the indication of its counting work having been found on testing to be correct within the limits of error tolerated of two per cent., and the following tariff fees are charged, viz.:—

	Th.	Sgr.	Pf.
For testing - -	„	„	
For supplementary work -	„	„	
Total charge -	„	„	

For this gas meter—
I = L.
and V = Cub. met.

Verification Office at the .

Stamp.

(*Signature of Chief Verifying Officer.*)

Certificate of verification.

17. The form of certificate specified under (*a*) and (*b*) refers to new gas meters provided with means for registration in metric quantities, as well as to those gas meters of other construction which have been previously used, and have had their counting work re-arranged for registering in metric terms.

As to the forms indicated under (*c*) and (*d*), they have become necessary in consequence of the provision of § 92 of the General Regulations, according to which gas meters which have been properly stamped and in use before the 1st January 1872, and from having undergone after that time unimportant repairs, may require re-stamping, may be again stamped without having to comply with all the new conditions.

In such last-mentioned certificates, I and V must be inserted in metric measurement, the latter specification chiefly for the object of determining the amount of fee payable in conformity with the tariff; for this purpose the former indication of the capacity of the drum may partly serve, and partly the number of lights which the gas meter is intended to supply; for each light a mean quantity of 142 litres of gas per hour may be adopted.

Repairs considered material.

18. The following are to be considered as material repairs, at the occurrence of which the gas meter registering in other measures must be altered to metric measurement in pursuance of § 92 of the General Regulations:

Renewal of the axis of revolution; of the drum; of the casing; of the counting work; and alteration of the measuring capacity.

Appendix XI.—*continued.*

Temporary provisions.

19. As in several parts of the territory of the Confederation, stamping of gas meters has not yet been ordered to take place, and yet under the Weights and Measures Law none but stamped gas meters will be permitted to be used on and after 1st January 1872, it will be allowed in such territories during the time of transition to stamp with the new stamp all the gas meters already in use and not yet stamped, provided that on being tested they are found admissible, though they do not register in metric measurement.

With respect to the determination of V and the form of certificates of verification, these gas meters are to be treated as indicated in No. 17.

In order that the increased business of verification which will be caused by the new regulations, and which will occasionally occur in places where no verification office exists, may be duly superintended and executed without too much inconvenience to the gas manufacturers and consumers, it is ordered—

That due notice of the stamping such gas meters must be given within the year 1870;

And that at such places where no cubic measuring apparatus for gas meters exists, the testing by means of standard gas meters may be extended to smaller gas meters as an exceptional provision.

The superintending authorities have to issue the requisite directions as to the places where such notices shall be issued, and as to proper arrangements for the testing.

FOERSTER.

The Standards Commission of the
North-German Confederation,
Berlin, 10th December 1869.

A.

FORMS OF ANNUAL STATEMENT OF BUSINESS PERFORMED BY THE VERIFICATION OFFICES.

The several forms must include—

A. A summary of all certificates of verification arranged according to the different kinds.

B. A summary of all return certificates.

C. *a.* A summary of certificates of re-verification, for all instruments previously used in trade, and found correct.

For special certificates—

C. *b.* Which refer to extraordinary works of verification, a separate table is to be drawn up showing the number of objects examined according to the several distinct kinds, and the fees received for them.

A.—SUMMARY OF CERTIFICATES.

I. MEASURES OF LENGTH VERIFIED.

Number of Certificates.	Verification Fees charged.			Number of Measures of Length verified.																Total Number of Measures of Length verified.
				1. Of Precision. Measures of Metal, of		2. Ordinary Measures of Metal, &c. of			3. Working Measures of Wood, of			4. Measures for Shop Purposes, of		5. Folding Measures, of		6. Ribbon Measures of Metal Plate, of				
				1 M.	Smaller Ones.	2 M.	1 M.	Smaller Ones.	5 M.	2 M.	1 M.	1 M.	½ M.	Down to 1 M.	Smaller Ones.	20 M.	10 M.	5 M.	2 M.	1 M.	
	Th.	Sgr.	Pf.																	

II. LIQUID MEASURES VERIFIED.

Number of Certificates.	Fee charged						Number of Liquid Measures verified, of													Total Number of Liquid Measures verified.
	For Verifying.			For Adjusting.			20 L.	10 L.	5 L.	2 L.	1 L.	½ L.	¼ L.	⅛ L.	$\frac{1}{10}$ L.	$\frac{1}{20}$ L.	0·2 L.	0·1 L.	0·05 L.	0·02 L.	
	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.														

III. CASKS VERIFIED.

Number of Certificates.	Fee charged						Number of Casks verified up to						
	For Verifying.			For Determination of Tare.			20 L.	50 L.	100 L.	200 L.	400 L.	800 L.	More than 800 L.
	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.							

IV. DRY MEASURES OF CAPACITY VERIFIED.

—	Number of Certificates of Verification.	Fee charged						Number of Measures verified, of														Total Number of Measures verified.	Total Number of Strikes verified.
		For Verifying.			For Adjusting.			1 H.	½ H.	¼ H.	20 L.	10 L.	5 L.	2 L.	1 L.	½ L.	¼ L.	⅛ L.	$\frac{1}{10}$ L.	0·2 L.	0·1 L.	0·05 L.	
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.																
a. For measures of metal -																							
b. For measures of wood -																							
c. For strikes																							
Total -																							

Appendix XI.—*continued.*

V. Weights verified.

—	Number of Certificates.	Fee charged						Number of Weights verified, of												Number of Single Weights in Nest Weights, of			Total Number of Weights verified.
		For Verifying.			For Adjusting.			50 K.	50 lb.	20 K.	10 K.	5 K.	2 K.	1 K.	500 G.	½ lb.	200 G.	100 G.	50 G.	Less Weight.	1 K. at 12 Pieces.	1 lb. at 11 Pieces.	200 G. at 9 Pieces.	
Trade Weights.		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.																
a. Of iron -																							
b. Of other metal																							
c. In form of nest sets (cup weights) -																							
Weights of Precision.																							
d. Of iron -																							
e. Of other metal																							
f. In form of medicinal weights -																							
g. In form of cup-weights																							
Total -																							

VI. Balances verified.

—	Number of Certificates.	Fee charged						Number of Balances of each description, with greatest bearing Capability.			Total Number of Balances.
		For Verifying.			For Adjusting.			Up to 5 K.	Up to 50 K.	More than 50 K.	
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.				
a. Balances with equal arms for trade use - -											
b. Balances of precision with equal arms and medicinal balances -											
c. Decimal balances with unequal arms - -											
d. Steelyards, or Roman balances - -											

	Number of Certificates and Balances.	Fee charged						Number of Decimal Balances of each description, with greatest bearing Capability.							Centesimal Balances.	
		For Verifying.			For Adjusting.			Up to 20 K.	Up to 1 Cwt.	Up to 5 Cwt.	Up to 10 Cwt.	Up to 15 Cwt.	Up to 20 Cwt.	More than 20 Cwt.	Up to 20 Cwt.	More than 20 Cwt.
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.									
e. Strasburg weighing machines - -																

	Number of Certificates.	Fee charged.			Number of Balances of each description, with greatest bearing Capability.			
					Up to 20 K.	Up to 1 Cwt.	Up to 5 Cwt.	More than 5 Cwt.
		Th.	Sgr.	Pf.				
f. Weighing machines of different systems -								
Pfitzer's patent weighing machines - -								
Pfitzer's decimal weighing machines - -								
Schönemann's balances -								
&c. &c.								
g. Balances with pans above the beam, or platform balances - -								
Schickert's balances, with pans above - -								
Pfitzer's platform balances, with pans above -								

Appendix XI.—*continued.*

VII. Alcoholmeters and Thermometers verified.

—	Number of Certificates and Instruments.	Fees charged for Testing.		
		Th.	Sgr.	Pf.
a. Thermometer - - -				
b. Alcoholmeter - - -				
c. Thermo-alcoholmeter - -				
d. After-testings - - -				

VIII. Gas Meters tested.

—	Number of Certificates and Gas Meters.	Fee charged						Number according to Size of Quantity of Gas to pass per Hour, V in cubic meter.				
		For Testing.			Supplementary Work.			Up to 0·5.	Up to 2.	Up to 6.	Up to 10.	More than 10.
		Th.	Sgr.	Pf.	Th.	Sgr.	Pf.					
1. Registering in metric measurement:												
a. Wet -												
b. Dry -												
2. Registering with old system -												
a. Wet -												
b. Dry -												

—	B. Return-Certificates.									C. Certificates of Re-verification.					
	a. For incorrect New Instruments.					*b.* For incorrect Instruments previously used in Trade.				*a.* For Instruments previously used, and still admissible.					
	Number of		Fee for Testing.			Number of		Fee for Testing.			Number of		Fee for Testing.		
	Certificates.	Instruments.	Th.	Sgr.	Pf.	Certificates.	Instruments.	Th.	Sgr.	Pf.	Certificates.	Instruments.	Th.	Sgr.	Pf.
I. Measures of length - -															
II. Liquid measures - -															
III. Casks - - -															
IV. Dry measures of capacity:															
a. Of metal - -															
b. Of wood - -															
c. Strikes - -															
V. Weights:															
a. Trade weights of iron															
b. Trade weights of other metal - -															
c. Trade weights in sets -															
d. Weights of precision in iron - - -															
e. Weights of precision of other metal - -															
f. Weights of precision in form of medicinal weights - -															
g. Weights of precision in form of cup-weights															
VI. Balances:															
a. With equal arms for trade use - -															
b. With equal arms as balances of precision															
c. With unequal arms, decimal balances -															
d. Steelyards - -															
e. Strasburg weighing machines - -															
f. Weighing machines of other systems -															
g. Balances with pans above the beam, or platform balances -															
VII. Thermometers and alcoholmeters:															
a. Thermometers -															
b. Alcoholmeters -															
c. Thermo-alcoholmeters															
VIII. Gas meters, with metric registration:															
a. Wet - - -															
b. Dry - - -															
With registration on old system:															
c. Wet - - -															
d. Dry - - -															

C. *b.* Special certificates for extraordinary testing work must be separately summed up.

Appendix XI.—*continued.*

B.

TARIFF OF FEES FOR VERIFICATION, to be charged according to § 82 of the General Regulations of 16th July 1869, and in pursuance of Art. 18 of the Weights and Measures Law of 17th August 1868, issued by the Standards Commission of the North German Confederation.

PRELIMINARY REMARKS.

1. The rates of fees under A. are to be charged if an instrument presented to the verification office proves on being tested to be admissible in accordance with the requirements of the General Regulations, and they include the whole work of verification, that is to say, the testing of the instrument and its stamping.

2. The rates of fees under B. are to be charged independently of those enumerated under A., when an instrument that has not been at once found admissible on being tested, has been subsequently corrected within the verification office, and has been submitted to repeated testings. In such cases, the provisions of § 80 of the General Regulations, according to which a distinction is to be made on the part of the verifying offices between adjustment work for errors within the limits tolerated in trade use, and those extending beyond these limits, do not apply; because the labour attendant upon corrections once agreed upon to be executed within the verification office, is not materially increased by the mere circumstance of these limits of toleration being exceeded.

3. The remuneration for difficult and intricate work of correction, which cannot be executed in the office itself, is left to mutual agreement between the verifying officer, who charges himself with its execution, and the parties concerned.

4. The amounts of rates under B. for verifying balances, and for verifying gas meters, are specially stated in the tariff under VI. and VIII. respectively. In those cases in which adjustment by the verification offices has not been considered at all practicable or expedient, or in which, as may happen, there is no question of adjusting, the column B. must be left blank, or, if necessary, an explanatory remark may be added.

5. The rates under C. are applicable in those cases in which merely a testing has taken place without stamping; for instance, with regard to instruments previously used in trade, which may be tested as to the limit of error tolerated allowed in such case, and returned without being again stamped; or to new instruments which may be found incorrect beyond the error tolerated, and are returned uncorrected.

6. For verification work outside the office, without distinction whether executed under official directions, or atthe request of private parties, the following charges, independently of the tariff fees, are to be made by the verifying officer.

a. Remuneration according to time employed, including time of journey there and back,—

	Th.	Sgr.
for half a day (5 hours and less)	1	5
for longer periods per diem	2	10

b. Expenses incurred for travelling there and back according to circumstances.

c. Expenses for transport of utensils required for the work, and for assistance required.

The rates fee under column B. are to be charged, when the case occurs, for work of correction executed outside the office, which could have been executed within the verification office itself.

In disputed cases, the decision as to the remuneration and expenses to be charged rests with the superintending authority.

Instruments.	A. For Verification.		B. For Adjustment.	C. For Verifying without Stamping.	
I. MEASURES OF LENGTH. (See No. 1–6 in § 3 of the General Regulations.)	Sgr. *a.*	*b.*	Sgr.	Sgr. *c.*	*d.*
1. Measures of precision in metal with fine subdivisions	6	3	—	3	3
2. Ordinary measures of metal, &c.:					
From 2m. and 1m.	4	1½	—	2	1½
„ 0·5m. to 0·1m.	3	1½	—	1½	1½
3. Working measures of wood	3	1	—	1½	1
4. Measures for trade use divided into centimeters	1	1	—	½	1
5. Folding measures	2	1	—	1	1
6. Ribbon measures of metal:					
Of 20m., 10m., 5m.	5	1	—	2½	1
„ 2m., 1m.	3	1	—	1½	1

The rates under *a.* and *c.* refer to the verification of the accuracy of the length of the whole measure.

The rates under *b.* and *d.* refer to the verification of the accuracy of the subdivisions, and are charged, independently of the rates under *a.* and *c.*, for verifying every hundred, or less than a hundred subdivisions. They will consequently be applicable under *d.* only when the measure has not previously been rejected on account of an error in the total length.

The column B. has not been filled up here, because corrections of measures of length can only occur in entirely exceptional cases, and will also be to so small an extent as not to justify the charging of separate fees.

For liquid measures.

Instruments.	A. For Verification.	B. For Correction.	C. For Verification without Stamping.
II. LIQUID MEASURES.	Sgr.	Sgr.	Sgr.
Measures of 20 litres	10	3	5
„ „ 10 „	6	2	3
„ „ 5 „	4	1½	2
„ „ 2 and 1 litre	3	1	1½
„ „ ½ litre	2	½	1
Each smaller measure	1	½	½

For measures from 2 L. downwards a reduction of the fees in column A. of 20% is to be made whenever 50 measures or more of the same capacity are presented at the same time for verification by the same party; the rates in column B. and C. remain unaltered.

For casks.

Instruments.	A. For Verification.	B. For Correction.	C. For Verification without Stamping.
III. CASKS.	Sgr.	Sgr.	Sgr.
For a cask of a capacity up to 100 L.	3	—	—
For a cask of a capacity of more than 100 L. to 200 L.	5	—	—
For a cask of a capacity of more than 200 L. to 400 L.	7½	—	—
For a cask of a capacity of more than 400 L. to 800 L.	10	—	—
And for a larger cask, for every additional 200 L. an additional fee of	2½	—	—
For ascertaining and stamping the tare-weight	5	—	—

For casks of a capacity of 50 L. and less, a reduction of fees to the amount of one-third is allowed whenever 25 or more casks are presented at the same time for verification by the same party.

For dry measures.

Instruments.	A. For Verification.	B. For Correction.	C. For Verification without Stamping.
IV. DRY MEASURES OF CAPACITY.	Sgr.	Sgr.	Sgr.
Measures of 100 litres	20	15	10
„ 50 „	15	10	7½
„ 25 and 20 litres	8	8	4
„ 10 litres	6	5	3
„ 5 „	5	4	2½
„ 2 „	3	3	1½
„ 1 „	2	2	1
Each smaller measure	1	1	½
Strikes of more than 30 centimeters in length	2	—	1
Smaller strikes	1	—	¼

Appendix XI.—*continued.*

For weights.

Instruments.	A. For Verification.		B. For Correction.		C. For Verification without Stamping.	
	Of Iron.	Of other Metal.	Of Iron.	Of other Metal.	Of Iron.	Of other Metal.
V. Weights.						
1. *Trade Weights.*	Sgr.	Sgr.	Sgr.	Sgr.	Sgr.	Sgr.
50 K. - - -	7	14	1½	4	3½	7
50 lb. and 20 lb. - -	4	8	1	3	2	4
10 K. and 5 K. - -	2	4	½	1½	1	2
2 K. to ½ lb. - -	1	2	½	1	½	1
200 G. and 100 G. - -	1	2	½	½	½	1
50 G. - - -	1	1	½	½	½	½
For each smaller weight -	—	½	—	½	—	½

In the case of iron trade weights with *copper* plugs the fees of other metal under B. are to be charged.

Instruments.	A. For Verification.		B. For Correction.		C. For Verification without Stamping.	
	Of Iron.	Of other Metal.	Of Iron.	Of other Metal.	Of Iron.	Of other Metal.
2. *Weights of Precision and Medicinal Weights.*	Sgr.	Sgr.	Sgr.	Sgr.	Sgr.	Sgr.
50 K. - - -	10	20	2	4	5	10
50 lb. and 20 K. - -	6	12	1½	3	3	6
10 K. and 5 K. - -	3	6	1	2	1½	3
2 K. to ½ lb. - -	1½	3	1	1½	1	1½
200 G. and 100 G. - -	1½	2	1	1	1	1
50 G. - - -	1½	1	1	1	1	½
For each smaller weight -	—	½	—	½	—	½

In the case of cup weights in nests, the fees are to be charged for the single weights.

For all weights a reduction of fees in column A. of 20 per cent. is to be made whenever 100 weights or more of the same size are presented at the same time for verification by the same party.

The rates in columns B. and C. remain in such cases unchanged.

For balances.

Instruments.	A. For Verification.	B. For Correction.	C. For Verification without Stamping.
VI. Balances.			
a. *With equal Arms for trade use.*	Sgr.	Sgr.	Sgr.
Carrying the greatest load on one side of—			
500 G. and less - -	2½	1	1½
More than 500 G. to 5 K. -	5	2	3
„ 5 K. to 20 K. -	7½	3	5
„ 20 K. to 50 K. -	10	5	7½
„ 50 K. to 100 K. -	12½	6	9
For every 50 K. more an additional fee of - -	2½	1	2
For special testing of the two scales of balances up to 20 K. greatest bearing capability - -	—	½	1
Beyond - - -	—	1	2
b. *Balances of Precision with equal Arms and medicinal balances.*			
Carrying the greatest load on one side of—			
500 G. and less - -	5	2½	3
More than 500 G. to 5 K. -	10	5	6
„ 5 K. to 20 K. -	15	7½	10
„ 20 K. to 50 K. -	20	10	15
For verifying the scales of the balance as under a.			
c. *Decimal Scale Beams with unequal Arms.*			
Carrying the greatest load on one side of—	Sgr.	Sgr.	Sgr.
5 K. and less - -	4	2	2
More than 5 K. to 20 K. -	6	3	3
„ 20 K. to 50 K. -	8	4	4
For every 50 K. more an additional fee of - -	2	1	1
For verifying the scales of the balance as under a.			
d. *Steelyards, or Roman Balances.*			
Carrying the greatest load on one side of—			
500 G. and less - -	7⅓	2½	5
More than 500 G. to 5 K. -	10	3	7
„ 5 K. to 20 K. -	12½	4	9
„ 20 K. to 50 K. -	15	5	11
„ 50 K. to 100 K. -	17½	6	13
For every 100 K. more an additional fee of - -	2½	1	2
e. *Strasburg Weighing Machines.*			
Carrying the greatest load of—			
20 K. - - -	6	2	4
1 Ctr. - - -	7⅓	3	5
5 „ - - -	10	4	8
10 „ - - -	15	5	11
15 „ - - -	20	6	14
20 „ - - -	25	8	17
30 „ - - -	30	10	20
For every 10 Ctr. more an additional fee of - -	5	2	3
f. *Weighing Machines of other construction.*			
As under e., leaving out column B.			
g. *Balances with Pans over the beam or platform balances.*			

All work for correcting balances, which may be chargeable under the tariff of fees, is to consist merely of the due counterpoising of the scales and beams, and any trifling adjustments of the knife-edges that may be required. More extensive work of correction is not permitted within the verification office (see No. 3 of preliminary remarks).

For alcohol meters and thermometers.

Instruments.	A. For Verification.	B. For Correction.	C. For Verification without Stamping.
VII. Alcoholmeters and Thermometers.			
Thermometers:			
First testing - - -	—	—	4½
Second testing - -	—	—	3
Verifying or stamping after the first and second testing -	7½	—	
Alcoholmeters:			
First testing of a single scale -	—	—	3½
Second „ „ -	—	—	1½
Verifying of a single scale, or stamping after the first and second testing - -	5	—	—
Thermo-alcoholmeters:			
First testing of a single scale -	—	—	4½
Second „ „ -	—	—	4
Third „ „ -	—	—	1½
Verifying „ „ -	10	—	—
Tables of reduction and directions for use - -	1½	—	—
Re-verification for granting a new certificate for an alcoholmeter or thermo-alcoholmeter scale - - -	—	—	3

Appendix XI.—*continued.*

For gas Meters.

Instruments.	A. For Verification.			B. For Supplementary Work.			C. For Verification without Stamping.		
VIII. Gas Meters.									
1. *Wet Gas Meters.*	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.	Th.	Sgr.	Pf.
Up to the greatest quantity of gas which the gas meter is intended to pass per hour, of—									
0·25 cubic metres -	—	10	—	—	6	—	—	8	—
0·50 „ -	—	15	—	—	7	—	—	10	—
1· „ -	—	20	—	—	8	—	—	16	—
2· „ -	1	—	—	—	10	—	—	24	—
4· „ -	1	10	—	—	12	—	1	2	—
6· „ -	1	20	—	—	14	—	1	10	—
8· „ -	2	—	—	—	16	—	1	18	—
10· „ -	2	10	—	—	18	—	1	26	—
15· „ -	2	20	—	—	20	—	2	4	—
For every additional 5 cubic metres and a fraction of this quantity an additional fee of - - -	—	10	—	—	2	—	—	8	—

Instruments.	A. For Verification.	B. For Supplementary Work.	C. For Verification without Stamping.
2. *Dry Gas Meters.* The fees in columns A. and C. are to be charged double. Column B. remains unchanged.			

For both 1 and 2, column B. refers only to supplementary work necessary for verification, and for which a charge is to be made corresponding with the outlay and the work done, such charge however not to exceed the above rates.

(Signed) Förster.

The Standards Commission of the North-German Confederation,
Berlin, the 12th December 1869.

C.

C.

TABLE for ascertaining the additional Weight to be added to the Contents of Water of the following specified Measures of Capacity at the various Temperatures of the contained Water, and the various Densities of the surrounding Air, in order to establish an equipoise, in kilograms and fractional parts, of the litre and its fractional parts; or for ascertaining the loss of weight in inverse proportion to this additional weight under specified circumstances, to be taken in proportional parts of a kilogram, from the weight of corrected water in a litre or other measure; computed by the Standards Commission of the North-German Confederation, under the conditions that the contents are of distilled water; that for the weighing brass weights are used, and that the specified capacity is contained in vessels of copper, brass, pewter, or tin, sheet iron, or glass, the volume of which varies according to the temperature, and at the normal temperature of 0° C. exactly corresponds with the specified capacity.

Table I. shows the requisite additional weight for the temperature of water between 8° and 23° C', and for every condition of atmospheric air, at which a litre of air weighs 1,145 milligrams.

Table II. gives for every greater weight of a litre of air (γ) the further addition (Q.) to the additional weight stated in Table I.

Table III. is a general auxiliary table which gives the exact weight of a litre of air, corresponding with every reading of the thermometer and barometer.

Note.—The original German tables I. and II. contain the corrections for measures of 25 L., 20 L., 10 L., 5 L., 2 L., 1 L., and $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, L. respectively. It is here considered sufficient to show the corrections for 1 litre.

There is also appended to Table III. in the German copy a corresponding table of corrections for the height of the barometer in old Paris inches, and for Reaumur's thermometer scale.

TABLE I.

Table I.

Showing the requisite Additional Weight for the Temperature of Water between 8° and 23° C., and for every Condition of Atmospheric Air at which a Litre of Air weighs 1,145 Milligrams.

t Centigrade.	Copper.	Brass.	Tin or Pewter.	Iron or Glass.	*t* Centigrade.	Copper.	Brass.	Tin or Pewter.	Iron or Glass.
8·0	Mgr. 711	Mgr. 671	Mgr. 527	Mgr. 853	10·0	Mgr. 753	Mgr. 702	Mgr. 523	Mgr. 930
1	712	671	526	856	1	756	705	524	935
2	713	671	525	859	2	760	708	526	941
3	714	672	523	861	3	764	711	527	946
4	715	673	522	864	4	768	715	529	952
5	716	673	521	867	5	772	718	531	958
6	718	674	520	871	6	776	722	533	964
7	719	675	520	874	7	780	726	535	970
8	721	677	519	877	8	784	730	537	976
9	723	678	519	881	9	789	734	539	982
9·0	725	679	518	885	11·0	794	738	541	989
1	727	681	518	889	1	798	742	544	995
2	729	683	518	893	2	803	747	546	1002
3	731	685	518	897	3	808	751	549	1009
4	734	687	519	901	4	813	756	552	1016
5	737	689	519	905	5	819	761	555	1023
6	740	691	520	910	6	824	766	558	1030
7	743	694	520	915	7	830	771	561	1037
8	746	696	521	920	8	836	776	565	1045
9	749	699	522	925	9	842	781	568	1052

Appendix XI.—*continued.*

t Centigrade.	Copper.	Brass.	Tin or Pewter.	Iron or Glass.
	Mgr.	Mgr.	Mgr.	Mgr.
12·0	848	787	572	1060
1	854	792	576	1068
2	860	798	580	1076
3	866	804	584	1084
4	873	810	588	1093
5	880	816	592	1101
6	886	822	597	1109
7	893	828	601	1118
8	900	835	606	1127
9	907	842	611	1135
13·0	914	848	616	1144
1	922	855	621	1153
2	929	862	626	1163
3	937	869	631	1172
4	944	877	637	1182
5	952	884	642	1191
6	960	891	648	1201
7	968	899	654	1211
8	976	906	660	1221
9	985	914	666	1231
14·0	993	922	672	1241
1	1002	930	678	1251
2	1010	938	685	1262
3	1019	947	691	1272
4	1028	955	698	1283
5	1037	964	705	1294
6	1046	972	711	1305
7	1055	981	718	1316
8	1065	990	725	1327
9	1074	999	733	1338
15·0	1084	1008	740	1350
1	1094	1017	747	1361
2	1104	1027	755	1373
3	1114	1036	763	1385
4	1124	1046	770	1396
5	1134	1056	778	1408
6	1144	1065	786	1420
7	1155	1075	795	1433
8	1165	1085	803	1445
9	1176	1096	811	1458
16·0	1187	1106	820	1470
1	1198	1116	828	1483
2	1209	1127	837	1496
3	1220	1138	846	1509
4	1231	1148	855	1522
5	1243	1159	864	1535
6	1254	1170	874	1548
7	1266	1181	883	1562
8	1278	1192	892	1575
9	1289	1204	902	1589
17·0	1301	1215	911	1602
1	1313	1227	921	1616
2	1326	1238	931	1630
3	1338	1250	941	1644
4	1350	1262	951	1658
5	1363	1274	961	1673
6	1375	1286	972	1687
7	1388	1298	982	1701
8	1401	1311	992	1716
9	1414	1323	1003	1731

t Centigrade.	Copper.	Brass.	Tin or Pewter.	Iron or Glass.
	Mgr.	Mgr.	Mgr.	Mgr.
18·0	1427	1336	1014	1745
1	1440	1348	1025	1760
2	1453	1361	1036	1775
3	1467	1374	1047	1791
4	1480	1387	1058	1806
5	1494	1400	1069	1821
6	1507	1413	1081	1837
7	1521	1427	1092	1852
8	1535	1440	1104	1868
9	1549	1454	1116	1884
19·0	1563	1467	1128	1900
1	1578	1481	1139	1916
2	1592	1495	1151	1932
3	1606	1509	1163	1948
4	1621	1523	1176	1964
5	1635	1537	1188	1980
6	1650	1551	1200	1997
7	1665	1565	1213	2013
8	1680	1580	1226	2030
9	1695	1594	1238	2047
20·0	1710	1609	1251	2064
1	1726	1624	1264	2081
2	1741	1639	1277	2098
3	1757	1654	1290	2116
4	1772	1669	1304	2133
5	1788	1684	1317	2151
6	1804	1699	1331	2168
7	1820	1714	1344	2186
8	1836	1730	1358	2203
9	1852	1746	1372	2221
21·0	1868	1761	1386	2239
1	1884	1777	1400	2257
2	1900	1793	1414	2275
3	1917	1809	1428	2294
4	1933	1825	1442	2312
5	1950	1841	1457	2330
6	1967	1857	1471	2349
7	1983	1873	1486	2367
8	2000	1890	1501	2386
9	2017	1907	1515	2405
22·0	2034	1923	1530	2424
1	2052	1940	1545	2443
2	2069	1957	1561	2462
3	2086	1974	1576	2481
4	2104	1991	1561	2501
5	2122	2008	1606	2520
6	2139	2025	1622	2539
7	2157	2042	1637	2559
8	2175	2060	1653	2579
9	2193	2077	1668	2599
23·0	2211	2095	1684	2619

Appendix XI.—*continued.*

TABLE II.

SHOWING for every GREATER WEIGHT of a LITRE of AIR than 1145 Mgr., and designated as γ in Table III., the FURTHER ADDITION Q. to be made to the additional Weight specified in Table I.

Table II.

γ	Q.	γ	Q.	γ	Q.	γ	Q.	γ	Q.
Mgr. 1145	Mgr. 0	Mgr. 1180	Mgr. 31	Mgr. 1220	Mgr. 66	Mgr. 1260	Mgr. 101	Mgr. 1300	Mgr. 136
		81	31	21	66	61	102		
46	1	82	32	22	67	62	102	01	137
47	2	83	33	23	68	63	103	02	137
48	3	84	34	24	69	64	104	03	138
49	4	85	35	25	70	65	105	04	139
		86	36	26	71	66	106	05	140
1150	4	87	37	27	72	67	107	06	141
		88	38	28	73	68	108	07	142
		89	39	29	74	69	109	08	143
51	5							09	144
52	6	1190	39	1230	74	1270	109		
53	7								
54	8	91	40	31	75	71	110	1310	144
55	9	92	41	32	76	72	111		
56	10	93	42	33	77	73	112		
57	11	94	43	34	78	74	113		
58	11	95	44	35	79	75	114	11	145
59	12	96	45	36	80	76	115	12	146
		97	46	37	81	77	116	13	147
1160	13	98	46	38	81	78	116	14	148
		99	47	39	82	79	117	15	149
								16	150
		1200	48	1240	83	1280	118	17	151
61	14							18	151
62	15	01	49	41	84	81	119	19	152
63	16	02	50	42	85	82	120		
64	17	03	51	43	86	83	121		
65	17	04	52	44	87	84	122	1320	153
66	18	05	52	45	88	85	123		
67	19	06	53	46	88	86	123		
68	20	07	54	47	89	87	124		
69	21	08	55	48	90	88	125	21	154
		09	56	49	91	99	126	22	155
1170	22							23	156
		1210	57	1250	92	1290	127	24	157
								25	158
71	23	11	58	51	93	91	128	26	158
72	24	12	59	52	94	92	129	27	159
73	24	13	59	53	95	93	130	28	160
74	25	14	60	54	96	94	131	29	161
75	26	15	61	55	96	95	131		
76	27	16	62	56	97	96	132		
77	28	17	63	57	98	97	133	1330	162
78	29	18	64	58	99	98	134		
79	30	19	65	59	100	99	135		

TABLE III.

SHOWING the WEIGHT γ in MILLIGRAMS, according to BAROMETER READINGS in MILLIMETERS, and of the THERMOMETER CENTIGRADE SCALE.

Note.—The reduction of the barometer reading to the normal temperature of 0°C, is that taken in the table.
To allow for saturation of moisture, about 8 mgr. should be taken from γ.

Table III.

Barometer.	Centigrade Thermometer.																
	8°.	9°.	10°.	11°.	12°.	13°.	14°.	15°.	16°.	17°.	18°.	19°.	20°.	21°.	22°.	23°.	24°.
Mm. 710	Mgr. 1172	Mgr. 1168	Mgr. 1164	Mgr. 1159	Mgr. 1155	Mgr. 1151	Mgr. 1146	Mgr. 1142	Mgr. 1138	Mgr. 1134	Mgr. 1130	Mgr. 1126	Mgr. 1122	Mgr. 1118	Mgr. 1114	Mgr. 1110	Mgr. 1106
1	74	69	65	61	57	52	48	44	40	36	32	28	24	20	16	12	08
2	75	71	67	63	58	54	50	46	41	37	33	29	25	21	17	13	09
3	77	73	68	64	60	56	51	47	43	39	35	31	27	23	19	15	11
4	79	74	70	66	61	57	53	49	45	41	36	32	28	24	20	16	12
5	80	76	72	67	63	59	55	50	46	42	38	34	30	26	22	18	14
6	82	78	73	69	65	60	56	52	48	44	40	35	31	27	23	19	15
7	84	79	75	71	66	62	58	54	49	45	41	37	33	29	25	21	17
8	85	81	77	72	68	64	59	55	51	47	43	39	35	31	27	22	18
9	87	83	78	74	70	65	61	57	53	48	44	40	36	32	28	24	20

Appendix XI.—*continued.*

Barometer.	Centigrade Thermometer.																
	8°.	9°.	10°.	11°.	12°.	13°.	14°.	15°.	16°.	17°.	18°.	19°.	20°.	21°.	22°.	23°.	24°.
Mm.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.
720	1189	1184	1180	1176	1171	1167	1163	1158	1154	1150	1146	1142	1138	1134	1130	1126	1122
1	90	86	82	77	73	69	64	60	56	52	48	43	39	35	31	27	23
2	92	88	83	79	75	70	66	62	57	53	49	45	41	37	33	29	25
3	94	89	85	81	76	72	68	63	59	55	51	47	42	38	34	30	26
4	95	91	86	82	78	73	69	65	61	56	52	48	44	40	36	32	28
5	97	92	88	84	79	75	71	67	62	58	54	50	46	42	38	33	29
6	99	94	90	85	81	77	72	68	64	60	55	51	47	43	39	35	31
7	1200	96	91	87	83	78	74	70	65	61	57	53	49	45	41	37	33
8	02	97	93	89	84	80	76	71	67	63	59	55	50	46	42	38	34
9	04	99	95	90	86	82	77	73	69	65	60	56	52	48	44	40	36
730	1205	1201	1196	1192	1187	1183	1179	1175	1170	1166	1162	1158	1154	1150	1145	1141	1137
1	07	02	98	96	89	85	80	76	72	68	63	59	55	51	47	43	39
2	09	04	1200	95	91	86	82	78	73	69	65	61	57	53	48	44	40
3	10	06	01	97	92	88	84	79	75	71	67	62	58	54	50	46	42
4	12	07	03	98	94	90	85	81	77	73	68	64	60	56	52	48	44
5	13	09	04	1200	96	91	87	83	78	74	70	66	61	58	53	49	45
6	15	11	06	02	97	93	89	84	80	76	71	67	63	59	55	51	47
7	17	12	08	03	99	94	90	86	82	77	73	69	65	60	56	52	48
8	18	14	09	05	1200	96	92	87	83	79	75	70	66	62	58	54	50
9	20	16	11	07	02	98	93	89	85	80	76	72	68	64	59	55	51
740	1222	1217	1213	1208	1204	1199	1195	1191	1186	1182	1178	1174	1169	1165	1161	1157	1153
1	23	19	14	10	05	1201	97	92	88	84	79	75	71	67	63	58	54
2	25	20	16	11	07	03	98	94	90	85	81	77	72	68	64	60	56
3	27	22	18	13	09	04	1200	95	91	87	83	78	74	70	66	62	57
4	28	24	19	15	10	06	01	97	93	88	84	80	76	71	67	63	59
5	30	25	21	16	12	08	03	99	94	90	86	82	77	73	69	65	61
6	32	27	23	18	14	09	05	1200	96	92	87	83	79	75	71	66	62
7	33	29	24	20	15	11	06	02	98	93	89	85	80	76	72	68	64
8	35	30	26	21	17	12	08	03	99	95	91	86	82	78	74	69	65
9	37	32	27	23	18	14	10	05	1201	96	92	88	84	79	75	71	67
750	1238	1234	1229	1225	1220	1216	1212	1207	1202	1198	1194	1189	1185	1181	1177	1173	1168
1	40	35	31	26	22	17	13	08	04	1200	95	91	87	83	78	74	70
2	41	37	32	28	23	19	14	10	06	01	97	93	88	84	80	76	71
3	43	39	34	29	25	20	16	12	07	03	98	94	90	86	81	77	73
4	45	40	36	31	27	22	18	13	09	04	1200	96	92	87	83	79	75
5	46	42	37	33	28	24	19	15	10	06	02	97	93	89	85	80	76
6	48	43	39	34	30	25	21	16	12	08	03	99	95	90	86	82	78
7	50	45	40	36	31	27	22	18	14	09	05	1201	96	92	88	83	79
8	51	47	42	38	33	28	24	20	15	11	07	02	98	93	89	85	81
9	53	48	44	39	35	30	26	21	17	12	08	04	99	95	91	87	82
760	1255	1250	1245	1241	1236	1232	1227	1223	1218	1214	1210	1205	1201	1197	1192	1188	1184
1	56	52	47	42	38	33	29	24	20	16	11	07	03	98	94	90	85
2	58	53	49	44	40	35	30	26	22	17	13	08	04	1200	96	91	87
3	60	55	50	46	41	37	32	28	23	19	14	10	06	01	97	93	89
4	61	57	52	47	43	38	34	29	25	20	16	12	07	03	99	94	90
5	63	58	54	49	44	40	35	31	26	22	18	14	09	05	1200	96	92
6	65	60	55	51	46	41	37	32	28	24	19	15	10	06	02	98	93
7	66	62	57	52	48	43	39	34	30	25	21	16	12	08	03	99	95
8	68	63	58	54	49	45	40	36	31	27	22	18	14	09	05	1201	96
9	70	65	60	56	51	46	42	37	33	28	24	20	15	11	07	02	98

Appendix XI.—*continued.*

Barometer.	Centigrade Thermometer.																
	8°.	9°.	10°.	11°.	12°.	13°.	14°.	15°.	16°.	17°.	18°.	19°.	20°.	21°.	22°.	23°.	24°.
Mm.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.	Mgr.
770	1271	1267	1262	1257	1253	1248	1243	1239	1234	1230	1226	1221	1217	1213	1208	1204	1200
1	73	68	63	59	54	50	45	40	36	32	27	23	18	14	10	05	01
2	74	70	65	60	56	51	47	42	38	33	29	24	20	16	11	07	03
3	76	71	67	62	58	53	48	44	39	35	30	26	22	17	13	09	04
4	78	73	68	64	59	54	50	45	41	36	32	28	23	19	14	10	06
5	79	75	70	65	61	56	51	47	42	38	34	29	25	20	16	12	07
6	81	76	72	67	62	58	53	49	44	40	35	31	26	22	18	13	09
7	83	78	73	69	64	59	55	50	46	41	37	32	28	23	19	15	10
8	84	80	75	70	66	61	56	52	47	43	38	34	29	25	21	16	12
9	86	81	77	72	67	63	58	53	49	44	40	35	31	27	22	18	13
780	1288	1283	1278	1274	1269	1264	1260	1255	1250	1246	1241	1237	1233	1228	1224	1220	1215
1	89	85	80	75	70	66	61	57	52	48	43	39	34	30	25	21	17
2	91	86	82	77	72	67	63	58	54	49	45	40	36	31	27	23	18
3	93	88	83	78	74	69	64	60	55	51	46	42	37	33	29	24	20
4	94	90	85	80	75	71	66	61	57	52	48	43	39	34	30	26	21
5	96	91	86	82	77	72	68	63	59	54	49	45	40	36	32	27	23
6	98	93	88	83	79	74	69	65	60	56	51	47	42	38	33	29	24
7	99	94	90	85	80	76	71	66	62	57	53	48	44	39	35	30	26
8	1301	96	91	97	82	77	73	68	63	59	54	50	45	41	36	32	27
9	03	98	93	88	84	79	74	70	65	60	56	51	47	42	38	34	29
790	1304	1299	1295	1290	1285	1280	1276	1271	1267	1262	1257	1253	1248	1244	1239	1235	1231
1	06	1301	96	92	87	82	77	73	68	64	59	54	50	46	41	37	32
2	08	03	98	93	88	84	79	74	70	65	61	56	52	47	43	38	34
3	09	04	1300	95	90	85	81	76	71	67	62	58	53	49	44	40	35
4	11	06	01	96	92	87	82	78	73	68	64	59	55	50	46	41	37
5	12	08	03	98	93	88	84	79	74	70	65	61	56	52	47	43	38
6	14	09	04	1300	95	90	85	81	76	72	67	62	58	53	49	45	40
7	16	11	06	01	97	92	87	82	78	73	68	64	59	55	51	46	42
8	17	13	08	03	98	93	89	84	79	75	70	66	61	57	52	48	43
9	19	14	09	05	1300	95	90	86	81	76	72	67	63	59	54	49	45
800	1321	1316	1311	1306	1301	1297	1292	1287	1282	1278	1273	1269	1264	1260	1255	1251	1246
1	22	17	13	08	03	98	93	89	84	79	75	70	66	61	57	52	48
2	24	19	14	09	05	1300	95	90	86	81	76	72	67	63	58	54	49
3	26	21	16	11	06	01	97	92	87	83	78	74	69	64	60	55	51
4	27	22	18	13	08	03	98	94	89	84	80	75	70	66	62	57	52
5	29	24	19	14	10	05	1300	95	91	86	81	77	72	68	63	59	54
6	31	26	21	16	11	06	02	97	92	87	83	78	74	69	65	60	56
7	32	27	23	18	13	08	03	99	94	89	84	80	75	71	66	62	57
8	34	29	24	19	14	10	05	1300	95	91	86	81	77	72	68	63	59
9	36	31	26	21	16	11	07	02	97	92	88	83	78	74	69	65	60
810	1337	1332	1327	1323	1318	1313	1308	1303	1299	1294	1289	1285	1280	1275	1271	1266	1262

APPENDIX XII.

Paper delivered by the Warden of the Standards.—Summary of Information relating to the existing system of Inspection of Weights and Measures; with practical suggestions for its improvement.

Part I. Laid before the Commission previously to the evidence of witnesses being given.

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VI. Powers and duties of the Board of Trade in relation to the verification and inspection of weights and measures	,,
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Objects of this paper.

It is now proposed to lay before the Commission a summary of the contents of the preceding papers which relate to the existing system of inspection of weights and measures in the United Kingdom, together with some further information, with the view of submitting for the consideration of the Commission such improvements as appear to be required in the large and important subject of the regulations of the weights and measures used in the vast number of daily transactions of this country.

List of places from which no returns have been received.

So far as regards the system of inspection in Great Britain, such summary of the information contained in Appendix III. appears to be more immediately required. Remarks upon the returns from Ireland have already been appended at the end of each abstract in Appendix IV. This summary may be preceded by a statement of the number of places in Great Britain for which standards have been verified, but from which no returns have been received; together with an estimate of the number of inspectors now employed in such places, and of districts of inspection. The returns are complete from the several districts in Ireland, all these returns having been furnished through the inspector-general of constabulary.

List of Places in Great Britain from which no Returns have been made.

Counties.	Cities, Boroughs, Manors, &c.
England.	
	*Newbury, Borough.
	*Reading.
	†Farringdon, Manor.
	*Cambridge, Borough.
	*Macclesfield, Borough.
	*Launceston, Borough.
England—*cont.*	
	*Derby, Borough.
	*Barnstaple, Borough.
	*Bideford, Town.
	Dartmouth, Borough.
	Exeter, City.
	Weymouth, Borough.
	†Gillingham, Manor.
	Maldon, Borough.
	†Cirencester, Town.
	Wooton-under-Edge, Town.
	Ryde (Isle of Wight), Town.
	Southampton, Borough.
	Winchester, City.
	Stockbridge, Borough.
	Bishop Stortford, Town.
	†Hemel Hempstead.
	Hitchin, Town.
	†Chatham, Town.
	*Dartford, Parish.
	Dover, Borough.
	Woolwich, Parish.
	†Swancombe, Manor.
	Accrington, Town.
	Lancaster, Borough.
	*Warrington, Borough.
	*Rochdale, Manor.
	Great Grimsby, Borough.
	Islington, Parish.
	Monmouth, Borough.
	King's Lynn, Borough.
	Daventry, Borough.
	Higham Ferrers, Borough.
	Hexham, Manor.
	Chipping Norton, Borough.
	Bilston Market.
	Burslem, Town.
	Lichfield, City.

* There is a district of the county bearing the same name as the fourteen places marked thus.
† In the thirteen places marked thus the inspection is probably merged in the county.

Appendix XII.—*continued.*

Counties.	Cities, Boroughs, Manors, &c.
ENGLAND—*cont.*	
	Orford, Borough.
	†Kingston, Borough.
	Winchelsea, Borough.
	*Devizes, Borough.
	*Swindon, Market.
	*Aldborne, Manor.
	†Cutsdam, Manor.
	†Evesham, Manor.
Yorkshire, West Riding.	
	Wakefield, Manor.
	Honley, Manor.
WALES.	
Carmarthen.	
	†Carmarthen, Borough.
	†Pwllheli, Borough.
	†Flint, Borough.
	†Rhayader, Borough.
SCOTLAND.	
	Ayr, Burgh.
Clarkmannan.	
	Annan, Burgh.
	Sanquhar, Burgh.
Linlithgow.	
Zetland.	Lordship of.

SUMMARY of PLACES from which no Returns received.

In Great Britain.	Total Number.	Inspection probably transferred to County.	Remaining.
Counties - - -	5	—	5
Cities, Burghs, &c. -	60	27	33
Total - - -	65	27	38

Number of inspectors and districts of inspection in the United Kingdom.

With respect to the number of inspectors and districts of inspection in the United Kingdom, so far as can be collected from the returns which have been received, and from some other official sources, it is shown that 709 Inspectors of weights and measures were employed in Great Britain in the year 1866. There appear also to be at least 18 Inspectors employed who are omitted in the returns, thus making a total number of not less than 727 Inspectors of weights and measures in Great Britain. This number does not include the four metropolitan parishes of Marylebone, Paddington, St. Pancras, and where juries of inspectors are appointed under private Acts. The addition of these three places will make up a total number of 731 districts of inspection of weights and measures in Great Britain.

Appendix IV. shows that in the year 1866 there were 613 Inspectors of weights and measures employed in Ireland, besides 11 more whose offices were then vacant, making a total number of 624 inspectors and districts of inspection in Ireland. All these are constabulary officers, acting ex officio as Inspectors of weights and measures.

Proportion of police officers.

In the United Kingdom there appear now therefore to be 1,355 districts of inspection of weights and measures, with at least as many inspecting officers, of whom not less than 1,100, or more than 80 per cent., are police officers. Excluding the four metropolitan parishes, out of the total number of 731 inspectors in Great Britain, 476, or 66 per cent., appear to be police officers; the greatest number of whom as well as all the constabulary police in Ireland, who are ex officio inspectors, receive no remuneration for their services as Inspectors of weights and measures. After further deducting the four metropolitan parishes and those not stated in the returns, there remain 226 inspectors in Great Britain who are not police officers, of whom 130 have other occupations; and when the number of whom no information is given has been deducted, it would appear that only 43 inspectors, of whom 12 are in the metropolitan districts, give up their whole time to their duties of inspection.

List of inspectors having no other occupation, with their salaries, &c.

The following is a list of these 46 districts of inspection and their population, with the salaries and other emoluments of the inspectors.

County.	Borough, &c.	Population.	Salary.	Other Emoluments.	Total.	Remuneration per 10,000 Inhabitants.
			£ s. d.	£ s. d.	£ s. d.	£
Cheshire - - -	Stockport, Borough - -	54,681	75 0 0	—	75 0 0	14
Durham - - -	South Shields, Borough -	35,239	52 0 0	—	52 0 0	15
	Sunderland, Borough -	78,211	200 0 0	—	200 0 0	25
Herefordshire - -	Hereford, City - - -	15,585	65 0 0	—	65 0 0	41
Lancashire - -	Bolton, Borough - -	70,395	85 0 0	—	85 0 0	12
	Liverpool, Borough - -	443,938	170 0 0	—	170 0 0	10
			120 0 0	—	120 0 0	
			110 0 0	—	110 0 0	
	Manchester, Borough - -	338,722	220 0 0	—	220 0 0	15
			140 0 0	—	140 0 0	
			100 0 0	—	100 0 0	
	Salford, Borough - -	102,449	125 0 0	—	125 0 0	12
Middlesex - -	County - - -	1,245,618	150 0 0	382 0 0	532 0 0	9
			150 0 0	78 6 3	228 6 3	
			150 0 0	64 16 10	214 16 10	
			150 0 0	40 0 0	190 0 0	
	London, City (two inspectors)	112,063	300 0 0	—	300 0 0	27
	Westminster, City - -	254,623	70 0 0	18 3 3	138 3 3	6
			50 0 0			
Salop - - -	County - - -	182,265	85 0 0	—	149 1 8	8
			64 1 8			
Somersetshire - -	Bristol, City - - -	154,093	200 0 0	5 16 5	205 16 5	13
Stafford - - -	County, (three inspectors) -	537,496	360 0 0	40 0 0	400 0 0	
Surrey - - -	County - - -	682,136	250 0 0	282 5 9	532 5 9	24
			250 0 0	401 18 3	651 18 3	
			175 0 0	22 19 6	197 19 6	
			225 0 0	30 13 6	255 13 6	
Sussex - - -	East Sussex, No. 2 Division of County.	21,900	41 7 6	5 0 0	46 7 6	22
	Lewes - - - - -	28,859	45 0 0	20 19 9	65 19 9	23
Warwick - - -	Birmingham, Borough -	296,076	130 0 0	—	330 0 0	11
			100 0 0	—		
			100 0 0	—		
Yorkshire - -	Kingston-on-Hull, Borough -	97,661	50 0 0	—	50 0 0	5
	Leeds - - - - -	207,165	80 0 0	—	80 0 0	4
	Sheffield - - - -	185,172	100 0 0	—	265 0 0	15
			65 0 0	—		
			100 0 0	—		
Edinburgh - -	Edinburgh, City (three inspectors)	66,429	220 0 0	—	220 0 0	23
Lanarkshire - -	Glasgow, City - - -	172,523	5 4 0	204 0 4	209 4 4	26
			12 4 0	54 8 5	66 12 5	
			10 16 0	162 15 1	173 11 1	
	Total 46 Inspectors - -		5,188 13 2	1,814 3 4	7,002 16 6	Average £15

* There is a district of the county bearing the same name as the fourteen places marked thus.
† In the thirteen places marked thus the inspection is probably merged in the county.

Appendix XII.—*continued.*

Out of their total remuneration, the inspectors of Middlesex and Surrey pay office expenses and assistants' wages.

Average remuneration of other inspectors.

The total amount of the salaries and emoluments of the 709 inspectors of Great Britain in 1866 being stated at 13,865*l.* 11*s.* 5*d.*, out of which 46 inspectors receive 7,002*l.* 16*s.* 6*d.*, there remains no more than 6,862*l.* 14*s.* 11*d.* for the other 666 inspectors, or on the average 13*l.* each.

Total receipts and disbursements in Great Britain.

The following is a summary of the total receipts and disbursements in the 709 districts of inspection of weights and measures in Great Britain, from which returns have been received, as shown at page 162 of Appendix III.

	Receipts applicable to Expenditure.					Total Expenditure for Salaries and Emoluments of Inspectors and other Expenses.
	Proportion of Penalties.	Total Produce of Weights, &c. seized.	Total Fees for Stamping.	Total Fees for Adjusting.	Total Receipt.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
England	2,773 11 2	207 2 5	5,233 10 3	3,076 9 7	11,290 13 5	15,762 4 2
Wales	34 0 2	—	137 1 0	148 15 9	319 16 11	369 4 9
Scotland	128 1 6	1 16 6	951 3 2	658 10 3	1,739 1 5	2,063 5 2
Great Britain	2,935 12 10	208 18 11	6,321 14 5	3,723 15 7	13,349 11 9	18,194 14 1

Out of the 86 counties in Great Britain, the total expenses exceeded the total receipts in 58 counties, the receipts were more than the expenses in 18, and 10 counties show a *nil* result.

The information upon this part of the subject appears, however, to require further explanation. The returns for the county of Middlesex in 1866, which have been prepared by the inspectors, show a total receipt applicable to a total expenditure on account of weights and measures of 745*l.* 14*s.* 4*d.* against 994*l.* 13*s.* 7*d.*, or a deficiency of 248*l.* 19*s.* 3*d.* But the following is an extract from "The Times" of 17th January 1868, from a report of the finances of the county of Middlesex for 1866, made by the treasurer to the magistrates:—

"Weights and Measures.

"The receipts arising from fines and penalties show a profit, after payment of all expenses, amounting to 92*l.* 10*s.* 5*d.*"

Non-collection in Ireland of fees payable by law.

The anomalous practice in Ireland of not collecting the fees payable by law to the inspectors for stamping weights and measures, has been referred to at p. 248 of Appendix III., and has been brought under the notice of both the Irish Government and the Treasury; but, as the Commission have already been informed, these authorities have not considered it to be expedient to make any change in the existing practice.

Re-verification of local standards.

With respect to the number of places where the standards have not been duly re-verified as required by law, it has been shown in the first report of the Warden of the Standards for 1866, that out of 301 cities and towns in Great Britain provided with standards, 120, or 36 per cent., had no standards which were legal from being duly re-verified, and that out of 57 manors or liberties, 44, or 77 per cent., had none but illegal standards.

Since this period a very large number of the local standards have been re-verified in the Standards department. So far as can now be ascertained, the existing proportion of unverified and illegal standards is much less than in 1866, but their number is still considerable. There appear now to be 82 cities and boroughs, and 8 manors where the standard weights have not been duly re-verified for five years, and of these places, 42 and 5 respectively have not had their standard measures re-verified for 10 years. Some control over the local officers is evidently required to secure due compliance with the provisions of law.

Inspector's balances and their adjustment.

In Great Britain 1,970 balances are stated in the returns to be used in 658 districts of inspection, being on an average about three balances for each inspector. Allowing three balances for each inspector in the 51 districts of inspection from which no returns of balances have been received, there are probably 2,120 balances now in use by Inspectors of weights and measures in Great Britain. A large number of these balances are stated to be adjusted not oftener than once in five years, and in using these balances, there appears to be no means of noting any less error than half a dram, being the smallest legal standard weight in possession of the inspectors.

In Ireland 1,275 balances are stated to be used in 600 districts of inspection, the inspectors in 24 districts having no balances. There are thus on average two balances used in each district, and it is the general practice to adjust them once a year. In a large proportion of these districts the smallest legal weight used by the inspectors is ¼ oz., and no smaller amount of error can be detected and specified.

There is therefore a total number of 3,488 balances used by inspecting officers in the several districts of inspection in the United Kingdom. Considering only the facts of the infrequency of adjustment of these balances, and the want of small weights to ascertain differences in comparisons, it would appear impossible that comparisons of weights could be made with anything approaching to due accuracy. But when it is also considered that long periods have in many instances elapsed without the local standards having been verified, and that no arrangements have been in force for securing competent persons to use the balances for making the requisite comparisons, it is evident that an improvement in this portion of the duties of the inspectors is urgently needed for the due protection of the public in obtaining just weights. The evidence of some of the principal scale-makers in London, to whom both balances and local standards are sent for adjustment, would give the best information to the Commission of their state before adjustment, when they had been used by the inspectors for testing weights in ordinary use in their several localities.

The inspectors balances are probably exposed to more wear and tear than any other balances, excepting perhaps those of costermongers, and ought to be duly examined and adjusted much more frequently than appears from the returns. It has been reported to the Standards department that balances have been constantly used for 40 years by inspectors without any adjustment whatever. Most respectable tradesmen find it necessary to have their balances adjusted every six months, and in London it is a common practice for shopkeepers to contract with a scale-maker for this purpose. The balances used in the comparison of local standards by the Standards department are thoroughly cleaned and adjusted every six months, besides being continually and carefully looked after in the meantime by the mechanic of the department.

Number of convictions, amount of penalties, &c. App. III., p. 113.

In 1866 there were 6,094 convictions in Great Britain under the Weights and Measures Acts, the amount of penalties being 4,730*l.* and of costs 1,638*l.*, or on an average about 15*s.* and 5*s.* respectively for each conviction. As has already been shown to the Commission, experienced inspectors agree that about 10 per cent. of the convictions apply to cases where there is intent to defraud the public.

During the same year, in Ireland there were 2,956 convictions, the penalties and costs being respectively 599*l.* and 159*l.*, or on an average 4*s.* and 1*s.* for each conviction.

Convictions where the inspector informing gets half the penalty.

Of the total number of 6,094 convictions in Great Britain in the stated 731 districts of inspection, with a population of 23,128,518 persons, there were 2,346 convictions in 43 places (including the metropolitan district), with a population of 2,999,597, *where half the penalty was paid to the inspector informing*, or on an average one conviction for every 1,279 inhabitants; and 3,748 convictions in the remaining 666 places, with a population of 20,128,921 persons, or on an average one conviction for every 5,360 inhabitants. The general result is that in districts where the inspector informing got half the penalty there were more than four times as many convictions amongst an equal number of inhabitants, as compared with districts where half the penalty was not paid to the inspector informing. But it should be observed that it is principally in the populous cities that the inspectors are allowed half the penalties, and not only is there in these places a much larger proportion of shopkeepers liable to inspection, but the larger amount of business transacted by each shopkeeper would

Appendix XII.—*continued.*

both increase the tendency of defects in their weights, measures, and balances, and also tend to facilitate attempts at fraud. By far the largest proportion of inspectors in districts where the informer does not get half the penalty are police officers, and although a police officer does not directly receive half the penalty, he is indirectly benefited by it, as it goes to the police superannuation fund.

Costs of convictions.

With reference to the costs incurred for convictions under the Weights and Measures laws, it should be observed that by the Act 14 & 15 Vict. c. 55. for amending the law relating to the expenses of prosecutions, it is provided that upon the recommendation of the local authorities, justices' clerks may be paid by salaries instead of fees, and such fees may either be remitted by the justices, or paid over to the county or other local funds. By a return moved for in 1866, of the number of justices' clerks paid by salaries instead of fees, it appears that in four counties in England and Wales, the justices' clerks are so paid. A table of fees authorized to be taken by magistrates' clerks is included in this return, the fee being 3*s.* for every conviction for false or illegal weights, measures, or balances.

Commons Paper, No. 276 of 1856.

Number of weights and measures stamped by inspectors.

The number and denomination of weights and measures stamped by inspectors in 1866, in the United Kingdom, is stated in the summary of Abstract D. in Appendix III. and Appendix IV., viz.:—

—	Of the same Denomination as the Official Standards.							Number of Weights and Measures stamped, of which there are no specific legal Standards.	Number stamped, not distinguished in the Returns.	Total of Weights and Measures stamped.
	Weights.			Measures.						
	Avoirdupois.	Troy.	Bullion.	Liquid.	Dry.	Length.	Gas.			
Great Britain - -	1,519,171	544	355	312,208	42,615	29,184	78,182	2,096	77,360	2,061,715
Ireland - - -	297,090	—	—	98,985	1,133	1,968	—	993	—	399,458
Total - -	1,816,261	544	355	411,193	43,748	31,152	78,182	3,089	77,360	2,461,173

The inspection of gas meters is distinct from the inspection of ordinary weights and measures, and returns relating to gas meters have been made in five instances only, viz., the Metropolitan district, Sheffield, York, Edinburgh, and Dundee. This subject will be more fully referred to in a subsequent part of this paper.

Out of 727 districts of inspection of weights and measures in Great Britain, returns of the number of weights and measures stamped were made only by 598. If a proportionate number were stamped in the 129 remaining districts, they would amount to 365,824, making a total in Great Britain of 2,427,549. It has been also shown that the returns of the total number stamped in Ireland are incomplete, and it would therefore appear that in round numbers, about 3,000,000 weights and measures were stamped in 1866 by the inspectors in the United Kingdom; nor does this number include troy weights used throughout the kingdom, nor any of the subdivided foot and other measures of length, except the yard rod used in certain shops, as it has not been the practice of inspectors to verify and stamp them.

No other denomination than of Standards should be legal.

It may here be pointed out that it is very desirable to get rid of the ambiguity in the construction of the existing law, as to the legality of, and the obligation to stamp weights and measures of other denominations than the existing official Standards, copies of which are furnished to the inspectors. If any special denominations of weights or measures should be required by the public, standards of these denominations ought to be provided by law. But no denominations of weights and measures should be legal, for which there are not specific Standards, except the multiples of the largest denominations of Standards, for instance, the hundredweight, and still larger weights.

Tables of legal weights and measures to be published.

With the view of facilitating the introduction of an uniform system of weights and measures, the Commission of 1841 considered that the provision in the Act 5 & 6 Will. 4. c. 63. s. 31. was not sufficiently extensive. They recommended (s. 96), that the Act of Parliament regulating Standards, weights, and measures contain a distinct statement in a tabular form of all the denominations of weight and measures recognized by the Legislature, and the purposes for which each is recognized, with their value expressed in terms of the units of weight and measure which are adopted for the standards; and that all local and customary use of the denominations therein contained, differing from their meaning as there stated, be prohibited by distinct enactment.

Question of adjustment of weights, &c. by inspectors.

The question, how far it may be expedient to authorize by law the adjustment of weights and measures by inspectors, is one that may deserve the consideration of the Commission, and upon which some evidence may be desirable. In France, the rule is strict against any adjustment by inspectors. In Ireland, it does not appear to be the practice for inspectors to adjust, except in the city of Dublin. The practice varies much in Great Britain. In England and Wales, the proportion of inspectors who adjust is 20 per cent., and in Scotland 50 per cent. The inspectors in the Metropolitan district do not adjust, but in Manchester and Liverpool the adjustment of weights and measures forms a considerable part of the inspectors' duties, and the fees for adjusting exceed in amount the fees for stamping. Such is generally the case also in those districts where the inspectors adjust; and it may be observed that throughout England and Wales the total fees for adjusting amount to three-fifths of the total fees for stamping, and in Scotland to two-thirds.

So far as regards the expediency of the practice of adjustment by inspectors, it may be thought that in this country it should be left to the discretion of the local authorities either to allow or to prohibit inspectors to adjust, without any express provision being required by law upon this point. On the one hand, the practice is probably convenient for many of those persons whose weights and measures require adjustment; the charges are definite and moderate, and the adjustment must be held to be satisfactory to the inspectors. On the other hand, allowing inspectors to adjust is obnoxious to tradesmen on many accounts. If an inspector appropriates to himself the fees for adjusting, it is a strong inducement to him to find fault with the weights and measures from time to time submitted to his inspection, and to require their adjustment. If he has to account to the local authorities for the fees received, he will have a similar inducement, from being naturally anxious to show a good statement of work done, and that his office is made self-supporting from the large amount of adjusting fees received. It may also be added that the proper adjustment of weights, and more particularly of measures, requires more mechanical skill and experience than an ordinary inspector at present possesses. Disgraceful specimens of *Standard* weights adjusted by inspectors have been sent up to the Standards Office, and it is probable that still worse work is applied to the ordinary weights and measures.

This question is also of importance as affecting the mode and amount of remuneration to the inspectors.

Table of fees for stamping, and for adjusting weights and measures.

The following is the table of fees charged for comparing and stamping, and for adjusting weights by the inspector of Manchester and other districts. The fees for comparing and stamping are regulated by the Act 5 & 6 Will. 4. c. 63., and are contained in a schedule annexed to the Act:—

Fees taken for Examining, Comparing, and Stamping Weights and Measures.

	s.	*d.*
Brass Weights.		
Each half hundredweight - - -	0	9
Each quarter do. - - -	0	6
Each 14 lb. - - - - -	0	4
Each weight under 14 lb. to 1 lb. inclusive -	0	1
Each weight under 1 lb. - - -	0	0½
Iron Weights.		
Each half hundredweight - - -	0	3
Each quarter do. - - -	0	2
Each 14 lb. - - - - -	0	1
Each weight under 14 lb. - - -	0	0½
Wooden Measures.		
Each bushel - - - -	0	3
Each half bushel - - - -	0	2
Each peck, and all under - - -	0	1
Each yard - - - - -	0	0½

Appendix XII.—*continued.*

Liquid Measures.

	s.	d.
Each four gallon	0	9
Each two gallon	0	4
Each gallon	0	2
Each half gallon	0	1
Each quart, and under	0	0½

Fees taken for Adjusting Weights and Measures.

Iron or Brass Weights.

56 lb. and 28 lb.	each 0	4
All under	„ 0	2

For weights belonging to ironmongers and dealers in weights, but for *new* weights *only*, half the above is the charge made.

If any weight, in adjusting, requires 1 lb. or more lead, such lead is charged for extra, at the rate of 2*d.* per lb.

Wooden Measures.

Each bushel and half bushel	0	4
Each peck, and all under	0	2
Each yard	0	1

If iron rims, extra charge, according to the amount of labour expended.

Liquid Measures.

Each four gallon	0	6
Each two gallon and gallon	0	3
All under	each 0	1

Fees taken for Marking Contents upon Weights and Measures.

Iron or Brass Weights.

56 lb. and 28 lb.	each 0	3
14 lb.	„ 0	2
7 lb., 4 lb., 2 lb., and 1 lb.	„ 0	1

Wooden Measures.

Bushel and half bushel	0	3
Peck, and all under	0	2

Liquid Measures.

Each copper measure, being a legal multiple or aliquot part of a gallon	0	3
If of pewter or tin, and for quart and all under - each	0	1

Charges made for putting New Rings and Loops to Weights, and for Repairing Measures.

	lb.	s.	d.	
Size of weight,	56	1	3	for ring and loop.
„	28	1	0	„
„	14	0	8	„
„	7	0	6	„

These charges include fixing, but not lead. Any ring and loop of the weight of 3 lbs. and upwards charged for at the rate of 5*d.* per lb. Repairing measures from 2*d.* each upwards, according to the extent of repairs required.

Question of stamping balances, and other weighing machines.

The question how far it may be expedient to adopt the practice of stamping balances and other weighing machines by authorized officers, upon payment of stated fees, before they can legally be used for trade purposes, is one that may deserve the consideration of the Commission, and upon which it may be desirable to have before them the evidence of persons practically interested.

Appointment of police as inspectors of weights and measures.

With respect to the employment of the police as inspectors of weights and measures, it may be observed that this was in no way contemplated when the existing system of inspection was first established in 1834 and 1835, nor indeed were the county and borough police then in existence. They were first established in England and Wales under the Act 2 & 3 Vict. c. 93., passed in 1839, and s. 10 expressly restrains them from employing themselves in any office or employment for hire or gain, other than the execution of the duties under the Act. This restriction was, however, repealed by a clause in an amending Act of the following session, and their employment as inspectors of weights and measures has now become very general, especially in the counties; but the practice has been established only under the directions of the loal authorities, and has in no way been directly sanctioned by Parliament. The police in Scotland were established under the Act 20 & 21 Vict. c. 72., passed in 1857, and up to the end of 1866, the proportion of Inspectors of weights and measures in Scotland, who were police officers, was not less than 50 per cent. The inspection of weights and measures in Ireland, except in the police district of Dublin metropolis, was transferred from the local authorities to the constabulary police under the Weights and Measures Act, Ireland, 1860; and to the Dublin Metropolitan Police under 30 & 31 Vict. c. 94., passed in 1867.

Some information relating to the duties of inspection of weights and measures exercised by the police, is contained in the annual Reports to Parliament from the Inspectors-General of Constabulary in Great Britain.

Extracts from Reports of Inspectors-General of Constabulary.

Extracts from Reports of Inspectors-General of Constabulary for 1866.

District No. 1.—*Eastern Counties, Midland, and North Wales; comprehending* 25 *counties,* 22 *boroughs consolidated with counties having efficient forces,* 36 *efficient boroughs, and eight boroughs with inefficient forces.*

Counties.

Commons' Paper 54. of 1866.

"*Extra duties.*—The inspection of weights and measures is generally under the police in counties, and acts exceedingly well, both to the traders and the puplic; and I hear of very few instances of bad cases being brought before the magistrates in comparison with what took place a few years ago. There is, however, a difficulty about the scales, as they are only seizable under certain circumstances, whereas greater inequality and more mischief can be done by having the scales out of order, than by the deficiencies in the weights themselves."

(After stating other extra duties, viz., inspection of common lodging houses, and of nuisances, acting as assistant relieving officers to casual poor, vagrants, &c., the report continues)—

"The above extra duties imposed upon the force I believe to be of great benefit to the public, and I feel confident that the more useful the constabulary can be made in undertaking them, the more their services will be valued. The difficulty of remuneration, however, arises from s. 10 of 2 & 3 Vict. c. 93., but as in the performance of these extra duties expenses must be incurred by the officers appointed to undertake them, it seems only just that they should be allowed, subject to the confirmation of the chief constable and court of quarter sessions." * *

Boroughs.

"The inspection of weights and measures, common lodgings, and nuisances, are generally under the police, and in many cases the relief of vagrants." * *

"Wm. Cartwright,
Lieut.-General."

In the reports from the inspectors of the northern district of England, and the southern district, there is no special allusion to the duties of inspection of weights and measures, performed by the police.

Extracts from Reports of 1867. 14/1867.

District No. 1.—*Eastern Counties, Midland, and North Wales.*

"*Extra duty, weights and measures.*—The performance of the extra duty of weights and measures, which is generally placed in the hands of the county police, has received great assistance from the late Act of Parliament, 29 & 30 Vict. c. 82. s. 9., which abolishes the stamp duty and fees on verification. These fees have, I can assert, frequently led to keeping back the standards from being sent up for re-adjustment to the last moment, in consequence of the heavy expense attending upon their being sent to the Exchequer, a difficulty which has now been removed.

"Wm. Cartwright, Lieut.-General,
H.M. Inspector of Constabulary."

No special reference to inspection of weights and measures, in reports of districts 2 and 3.

Scotland. 319/1867.

"The inspection of weights and measures is now very generally placed under the constabulary in Scotland, and the counties of Kinross, Nairn, Renfrew, and Sutherland are about to do so immediately. This arrangement gives general satisfaction to the public.

"J. Kinloch."

Extract from Reports of 1868. 132/1868.

District No. 1.—*Eastern Counties, Midland, and North Wales District.*

"The extra duties of the constables remain much as during the previous year, but as some misconception prevails as to the payment of the police officers who are appointed Inspectors of weights and measures, I think it right to state that in no instance am I aware of the fees taken being applied to the benefit of the inspectors, as they are generally placed to the credit of the county or borough fund, and only the remuneration for expense out of pocket allowed to the inspectors. I do not hesitate to say that I know of no duty which has been undertaken by the police more valuable than this to the community, and the poor in particular.

"Wm. Cartwright, Lieut.-General,
H.M. Inspector of Constabulary."

Appendix XII.—*continued.*

1869. EXTRACTS from REPORTS of 1869.

District No. 1.—Eastern Counties, Midland, and North Wales District, year to 29 Sept. 1868.

"The united power of county and borough police forces is year by year increasing.

"There are now 34 boroughs with efficient independent forces, besides 22 boroughs which have been consolidated with their respective forces.

"Of the eight small boroughs under 5,000 population, I have to report that they are still in their inefficient state, and as far as I can see are likely to remain so, unless the Legislature interferes. It is a serious drawback to the general working of the force, and I do not hesitate again to state that the general efficiency of the constabulary never can be confirmed until these small boroughs are forced into consolidation.

"The extra duties correspond with those undertaken in counties, and as vacancies occur in the inspection of nuisances, weights and measures, &c., I generally find that they are given to the police, which I consider a step in the right direction, as being placed in the hands of responsible officers who can act without showing favour or affection to any individuals.

"WM. CARTWRIGHT, Major-General,
H.M. Inspector of Constabulary."

The consolidation of the county and borough police districts here referred to, deserves consideration as affecting the question of the future consolidation of the county and borough districts of inspection of weights and measures, to which attention will be herein-after drawn.

The pay to the police of the United Kingdom varies considerably in different localities. The following table will give a general idea of the annual rates paid; these are taken from the several reports made to Parliament. Revised salaries to the constabulary force in Ireland were authorized by the Act 29 & 30 Vict. c. 103., passed in 1866.

—	Superintendents in Great Britain, or County Inspectors, Ireland.	Inspectors in Great Britain, or Sub-Inspectors, Ireland.	Serjeants in Great Britain, or Head Constables, Ireland.	Other Constables.
	£ £	£ £	£ £	£ £
In Great Britain	100 to 200	70 to 100	60 to 75	45 to 60
In Ireland -	270 „ 300	125 „ 200	61 „ 80	31 „ 53

There is also an allowance for clothing, say 6*l.* a year; and in Ireland, barracks, fuel, and light are found for the constabulary.

Some special provisions respecting the remuneration to the police are contained in the Act 3 & 4 Will. 4. c. 88. Under s. 10, for providing a superannuation fund, moieties of fines and penalties awarded to the police on summary convictions, are directed to be paid to the superannuation fund. By s. 16, no police constable is to receive for his own use, any fee for the performance of any act done by him in the execution of his duties as such constable. And under s. 17. justices are empowered from time to time, subject to the approval of the Secretary of State, to settle tables of fees and allowances for the performance of other occasional duties which may be required of the local constables.

Their superannuation allowances.

In England and Wales a system of pensions to the police exists, paid from superannuation funds, arising partly from stoppages of pay, partly from fines, and partly from the sale of old stores, all of which together have proved quite inadequate to meet the demands upon them, and many of them are verging on bankruptcy; but an Act has been recently passed by which any deficiency in the superannuation fund is to be made good out of the police rate. In Scotland no system of pensions to the police has yet been established. A Select Committee of the House of Lords was appointed in 1868, to inquire into the county and burgh police system of Scotland, on the motion of the Earl of Minto, who was chairman of the Committee. In their report, from which these statements are taken, the Committee stated their opinion that no real economy or advantage would be attained by the creation of superannuation funds in Scotland, on the English model, but that the best and undoubtedly the simplest course would be to require the public to provide them. The scale of superannuation allowance to the police in England is analogous to that in the Civil Service, the maximum being two-thirds of the salary.

Lords' Report (112.), 1868.

How far applicable to Inspectors of weights and measures.

Many of the considerations which apply not only to pensions and retiring allowances to officers of the police force, but also to their remuneration, are also applicable to Inspectors of weights and measures.

The question of awarding a superannuation allowance to Inspectors of weights and measures is one connected with their remuneration. It has been brought under the notice of the Commission by a memorial from the inspectors of Middlesex and Surrey (see Appendix VI. p. 282), and it appears to deserve the consideration of the Commission with a view of a recommendation that some provision should be made by law to enable superannuation allowances to be granted to these inspectors.

In Ireland the whole expense of the constabulary is defrayed from the public revenue, amounting according to the estimates for 1869–70 to 905,544*l.*, of which 102,743*l.* is for pensions and gratuities. Against the total sum there is an estimated receipt for old stores, &c., of 21,320*l.* In Great Britain one-fourth of the expenses of pay and clothing of the county, borough, and metropolitan police is paid from the public revenues, but no portion of the superannuations.

Comparison of inspecting duties exercised by police and by others.

As regards the question of the expediency of employing police officers as Inspectors of weights and measures, the following comparison of the duties of inspection exercised in Great Britain by police officers and by other persons may be useful. Generally speaking, the inspection in counties is exercised by the police, and in the large cities by inspectors who have no other occupation.

—	Population of Inspectors' Districts.			Number of Inspectors.			Number of Inspectors who adjust.			Salaries of Inspectors.			Emoluments to Inspectors.			Number of Convictions.		
	Police.	Others.	Total.	Police.	Others.	Total.	Police.	Others.	Total.	Police.	Others.	Total.	Police.	Others.	Total.	Police.	Others.	Total.
										£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.			
England	10,280,176	7,514,022	17,794,198	400	184	584	76	34	110	2,078 6 10	7,043 13 0	9,121 19 10	874 1 2	2,025 15 1	2,899 16 3	1,883	3,526	5,409
Wales -	944,167	50,277	994,444	31	8	39	9	—	9	32 9 2	179 19 7	212 8 9	94 18 10	—	94 18 10	102	1	103
Scotland	1,659,337	1,149,744	2,809,081	45	59	104	30	17	47	272 8 1	565 19 0	838 7 1	53 2 2	644 18 6	698 0 8	158	364	522
	12,883,680	8,714,043	21,597,723*	476	251	727	115	51	166	2,383 4 1	7,789 11 7	10,172 15 8	10,22 2 2	2,670 13 7	3,692 15 9	2,203	3,891	6,094

* The population of those places from which no returns have been received is not included in these figures. The actual population, according to the census of 1861, is:—

England - -	18,954,444
Wales - -	1,111,780
Scotland - -	3,062,294
	23,128,518

Average *Population* of each Police Inspector's district - - - 27,507
Ditto ditto other ditto - - - 41,163

—	Salary.	Emoluments.	Total.
	£ s. d.	£ s. d.	£ s. d.
Average salary and emoluments of each police inspector -	5 3 11	2 3 8	7 7 7
Average salary and emoluments of each other inspector -	38 5 7	11 0 2	49 5 9
Average salary and emoluments of each ditto, excluding inspectors having no other occupation - - - -	13 8 9	1 10 7	14 19 4

Appendix XII.—*continued.*

Average *Number of Convictions* by each Police Inspector - - - - - 5

Average *Number of Convictions* by other Inspectors - - - - - 19

Average *Cost* of each Conviction (in salaries and emoluments)—

	£	s.	d.
Police Inspectors - -	1	11	4
Other Inspectors - -	2	11	6

Advantages and objections of police discharging these duties.

The employment of police as Inspectors of weights and measures was probably first adopted not only as an economical arrangement, but because the duties of police in many respects qualified the officers to act as Inspectors of weights and measures. On the other hand, there are many objections to the existing practice. It should be noticed that the existing duties of the inspectors are two-fold; 1st, the duty of comparing and stamping weights and measures, to which is often added that of adjusting them; and 2ndly, the duties of inspection of weights and measures. The principal duty of police officers is that of police, and their occasional duty of verification and inspection of weights and measures must necessarily be less attended to. They can hardly give sufficient time and attention to it, nor obtain the mechanical skill requisite for the proper discharge of the duties of the office of Inspector of weights and measures. Above all, they receive no remuneration for these duties connected with weights and measures, and thus the greatest inducement to their efficiency in this respect is wanting.

At the same time the employment of the police for this duty has become so general that it may not be expedient to interfere materially with the practice, and in fact many of the duties now imposed by law on the Inspectors of weights and measures, relating to the detection and prosecution of offences against the law, are more properly police duties. But regulations may be framed which would obviate the objection to the existing practice. It appears to me that in the appointment of inspectors and determining the districts of inspection, as well as in framing any new regulations for improving the existing system of inspection of weights and measures, we should profit by the experience and example of France, where a more organized system of verification and of inspection of weights and measures has been established, after passing through the preliminary stage at which we now find ourselves.

System adopted in France.

Distinct officers of verification, and of inspection.

In France, the duties of comparison and verification of weights and measures, and of their inspection, and the detection and prosecution of offenders against the weights and measures laws, are intrusted to distinct officers, the first to vérificateurs, the second to the police. This principle was also in force in this country previously to the establishment of the present system of inspection in 1834, and it is still carried out in the City of London and in those metropolitan parishes which exercise the powers granted to them by their private Acts. In these places weights and measures are originally compared and tested by *stampers* appointed for that purpose, and the duties of inspection are exercised by the inspector of the City of London, and in the parishes by juries, on the old system of leet or annoyance juries. These juries were necessary in times when no system of police had been established, but their duties are obviously police duties, and the principle carried out in France at once recommends itself for adoption.

Inspection proposed to be exercised by police.

It is suggested that the Commission should consider how far it may be expedient that this principle should be adopted in this country, a systematic organization of police being now generally established throughout the United Kingdom. If the principle be approved, the duties of *inspection of weights and measures,* and of the detection and prosecution of offenders against the weights and measures laws, might be left entirely to the police, at least in the counties of Great Britain, where the police are under the authority of the magistrates, and the districts of inspection of weights and measures would be coterminous with the police districts. It would be necessary for the purpose of inspection, and the detection of unjust weights and measures, that the police should be furnished by the local authorities with subsidiary standards duly compared and authenticated from time to time. There would be also this advantage in the division of the present duties of the inspectors, that the two distinct officers of verification and of inspection would act as checks on each other, in testing the accuracy of the weights and measures in the district.

The chief officer of police in each district should be responsible for the duties of inspection of weights and measures, the actual duties of which would be performed in the several sub-districts by subordinate officers of police, specially selected for such duty, and acting under the directions of the chief officer. He should be required by law to see that these duties are exercised in conformity with general instructions to be issued from time to time by the Board of Trade, in order to insure uniformity of practice; and to furnish such information respecting the inspection of weights and measures in his district, to the Board of Trade, as may be called for by them, especially annual returns in a specified form. The several districts of police in the United Kingdom, together with the names and addresses of the chief officers, are published annually in the Police and Constabulary Almanack. The magistrates, "or local authorities," may be empowered to award to the chief or other officer of police, such remuneration for the performance of the duties of inspection of weights and measures as they shall think fit, with the approval of the Board of Trade.

Appointment and districts of verifiers.

It will remain to consider the question of the appointment and districts of the *verifiers of weights and measures,* whose duties will be limited to the custody of the local standards and apparatus, and the comparison and stamping, and perhaps the adjustment, of weights and measures. On this subject I would call especial attention to the following paragraph in Appendix II. to the Second Report of the Commission:—

"M. Barny, the vérificateur en chef, in his work published in 1863, calls attention (p. 264) to what he terms the vicious system of employing so large a number of officers with insufficient work for them and insufficient pay. He says that they are not employed more than 50 or 60 days in the year, and that their duties are not properly performed, and that the public service consequently suffers. M. Barny recommends that the number of officers should be proportioned to the work, and those officers should be well paid; that instead of having officers of verification in each arrondissement independent of each other, there shall be but one properly qualified vérificateur in each department or large division of the country, under whose authority and direction a sufficient number of assistants should be placed, and that all these departmental vérificateurs should again be subordinate to an inspector general. *He adds, significantly, that such an improved system would be perfectly applicable to Great Britain.*"

These views appear to be sound, and might properly be carried out here. Take the case of Ireland, with her 624 inspectors and districts of inspection, and as many sets of standards and apparatus. One chief verifier for each county, with an additional verifier for each large and populous city, would be amply sufficient with sub-verifiers where required. And in Great Britain also, the same plan may be adopted. The appointment of and authority over Inspectors of weights and measures in municipal boroughs, now by law intrusted to the town councils, and in parishes to vestries, and thus in many cases to the very tradesmen whose weights and measures are to be inspected, ought never to have been allowed, and should now cease.

Provision as to existing inspectors.

Provision at the same time might be made for allowing the continuance of the exercise of the duties of inspection by the existing experienced inspectors in the Metropolitan district and in large and populous places, such as Liverpool and Manchester, who have for years past most efficiently discharged their duties of inspection. But every such exercise should be subject to the approval of the Board of Trade. It may be expedient also that such inspection should be made in association with the police. It is the practice, and it is requisite that the inspector when making his visits should have a witness, and this witness should be a policeman selected for this duty. The transition of the duties of inspection from the existing inspectors to the police will thus be easily affected.

With respect to the remuneration of these inspectors, it is desirable that the objectionable practice, so far as it now exists, of directly granting to the inspector informing half the fine imposed on conviction, should cease. It would be hard upon the experienced inspectors who have efficiently performed their duties of inspection, to lose their accustomed remuneration whilst they continue to perform the same duties, and it may be recommended that their net average receipt from this source should be made up to them in the salary awarded. The amounts of the moieties of the fines, as well as the produce of the old weights and measures seized, should more properly pass to the fund from which the salaries of these inspectors are paid. By this arrangement, no additional expense would be entailed on the county or district of inspection. In fact, as a measure of justice, care should be taken in any new arrangement of the duties of inspection, to provide that individual officers should suffer as little as possible from loss of their offices or customary remuneration. There were many grievous hardships of this kind inflicted on the Irish inspectors of weights and measures when their duties were

Appendix XII.—*continued.*

transferred to the constabulary police in 1860, no provision whatever being made for any compensation, nor was any awarded to them.

In the first appointment of verifiers, those persons should be selected who now perform the duties of inspectors, and sub-verifiers should in preference be chosen from the same class. As the majority of inspectors are officers of police, the verifiers and sub-verifiers will then be selected principally from the police. It would be very desirable for several reasons, that this connection between the police acting as Inspectors of weights and measures, and the verifiers should be continued, and that a good understanding should be maintained between these officers performing analogous duties. Indeed it may be recommended as a rule, that, in future appointments, the verifiers and sub-verifiers should be chosen from the police, the sub-verifier naturally looking forward to promotion as a verifier. The work of verifying being much lighter than the ordinary police duties, if the average remuneration were also made somewhat higher, it would be advantageous in every way to the police force that the policeman could look forward to better himself by being employed in the verification of weights and measures.

It has been shown that there are now nearly 1,400 districts of inspection in the United Kingdom, and at least as many inspecting officers. By the proposed new arrangement, there would probably be less than one-tenth of the number of verifiers and districts of verification required, viz. :—

1 for each county in England - -	40
3 additional for Middlesex - - -	3
3 „ Surrey - - -	3
2 „ Ridings of Yorkshire -	2
1 for each county in Wales - -	12
1 „ Scotland - - -	34
1 „ Ireland - - -	32
1 additional for Cork, Galway, and Tipperary	3
Total for counties -	129
1 for each of the more populous cities, such as London, Westminster, Liverpool, Manchester, Birmingham, Bristol, Leeds, Glasgow - - - - - -	8
Total - -	137

It might be expedient that in some of the smaller counties the verifier of the adjoining county should also be appointed to discharge the duties of verification.

It has been also shown that the average remuneration of the present Inspectors of weights and measures, who have no other occupation, is about 150*l.* a year. At this rate the total annual expense of the salaries of 137 verifiers would be 20,550*l.* At present the fees of verification and of adjustment amount to about half that sum; under an improved system, these receipts might be largely increased. In addition to the salaries of the verifiers, there would also be the amount of their incidental expenses, as well as the pay of the sub-verifiers. But in fact the expenditure for the system of verification of weights and measures in each district would be inconsiderable. Provision should be made by law to enable these charges, together with such superannuation allowances as might be awarded to the verifiers or sub-verifiers, to be defrayed from the local funds.

In France, as stated in Appendix II. to Second Report, p. 46, there are strict regulations for the appointment of vérificateurs, as to their age and qualifications, and they are selected by a competitive examination. Although the verifiers would not be civil servants, but local officers, and more immediately under the control of the local authorities, yet, as appointed under statute and for public purposes, it may be desirable that their qualification should be tested and certified through the Civil Service Commission; and that the appointment and the remuneration of the verifiers be made subject to the approval of the Board of Trade, to whom the certificate of qualification should be transmitted by the local authorities. The Board of Trade should also be empowered to dismiss any verifier for misconduct or neglect, or inefficient discharge of his duty.

The verifiers should discharge their duties according to instructions issued to them from time to time by the Board of Trade. These instructions should be published in the Gazette, and laid annually before Parliament. They should include directions to furnish annually to the Warden of the Standards returns of the duties discharged by them, according to a printed form to be transmitted to them.

This summary completes the information to be laid before the Commission so far as relates to the returns from the Inspectors, abstracts of which are contained in Appendix V. and Appendix VI., and to the Imperial weights and measures established under the Act 5 Geo. 4. c. 74.

Provisions of local Acts for appointing inspectors in Metropolitan parishes.

Attention may now be drawn to the system of inspection exercised in the three Metropolitan parishes of Paddington, St. Marylebone, and St. Pancras, under their local and personal Acts, in pursuance of which 16 inspectors, 20 inspectors, and a leet jury of 50 inspectors of weights and measures respectively, are appointed annually to discharge the special duties laid down in the Acts.

The following are the clauses relating to the inspection of weights and measures, in the local and personal Act 59 Geo. 3. c. 39., for establishing a select vestry in the parish of St. Pancras, in the county of Middlesex, and for other purposes relating thereto. These clauses are identical with those in the local and personal Acts of the parishes of Paddington and St. Marylebone.

Vestrymen may appoint Inspectors of weights and measures.

S. 34. And, in order effectually to prevent the dealing by or with unlawful balances, weights, or measures within the said parish, be it further enacted, that it shall and may be lawful to and for the said vestrymen, and they are hereby required, at the quarterly meeting in *March* in every year, or within ten days afterwards, to make a list in writing of a sufficient number of householders residing within the said parish of *Saint Pancras*, whom they the said vestrymen shall think fitly qualified for serving the office of inspectors of balances, weights, and measures within the said parish; and such vestrymen shall order their clerk or clerks to issue written or printed summonses, with his or their names subjoined thereto, requiring such householders to be and appear before the said vestrymen at a subsequent meeting, the time and place of which shall in such summonses be mentioned; and such vestrymen shall and may, at such subsequent meeting, nominate and appoint so many of such persons as they shall think proper; and the several persons so nominated and appointed shall be and be called "inspectors of balances, weights, and measures" within the said parish, and shall take an oath to the following effect, which oath the chairman at the meeting of the said vestrymen for the time being, or any justice of the peace for the said county then present, is hereby empowered to administer :—

Inspector's oath.

"I A.B. do swear, that during the time of my continuance in the office whereunto I am now appointed, I will diligently from time to time inspect the balances, weights, and measures in the several houses, shops, brewhouses, and warehouses in the parish of *Saint Pancras*, in the county of *Middlesex*, and that I will not present any person or thing through hatred or malice, nor leave the same unpresented through love, favour, affection, reward, or hope thereof. So help me God."

Inspectors to serve until successors appointed. New inspectors may be appointed in case of death.

And each and every inspector so to be appointed shall serve and continue in the said office until the next appointment of inspectors shall have taken place; but in case any inspector shall within that period die, or become disabled from serving the said office, then and in every such case another inspector shall or may be appointed in place of the inspector so dying or becoming disabled (if thought necessary, but not otherwise,) by the said vestrymen at some special meeting to be for that purpose holden as aforesaid.

Penalty on persons refusing to serve as inspectors.

S. 35. Provided always, and be it further enacted, that in case any person so summoned as aforesaid to take upon him the said office of inspector of balances, weights, and measures, shall neglect or refuse to appear according to the direction of such summons, or appearing shall refuse to take upon him the said office (being thereunto nominated and appointed), every person so offending shall forfeit and pay the sum of ten pounds; and such penalty shall be levied and recovered by such ways and means as any other penalty may be recovered by virtue of this Act; and such penalty, when recovered, shall be applied to the purposes of this Act, for the use of the poor of the said parish.

Duty of the inspectors.

S. 36. And be it further enacted, that the said inspectors, or any four or more of them, shall be and they are hereby authorized and empowered, and strictly required, once in every calendar month at least, at seasonable times in the day, to enter into all and every shop, house, brewhouse, and warehouse, inn or victualling house, within the said parish of *Saint Pancras*, or into any other house or houses belonging to any person or persons that deal by weight or measure, as well of milk as other measures; and if the said inspectors shall find any balance, weight, or measure to be defective, or not marked and stamped according to the directions of this Act, or of the said former Act, it shall and may be lawful to and for the said inspectors, and they are hereby directed and required, to break and destroy the same, and to amerce the owner or owners thereof, or such person or persons in whose custody or possession the same

Penalty on persons using short weights, &c.

Appendix XII.—*continued.*

shall be found, in any penalty not exceeding ten shillings for the first offence, and not exceeding twenty shillings for the second offence, and not exceeding forty shillings for the third and every other offence; and it shall and may be lawful to and for the said vestrymen, and they are hereby required, within one calendar month next after such person or persons is, are, or shall be convicted of such second and every subsequent offence, to cause his, her, or their name or names, place or places of abode, and addition or additions, together with the nature of his, her, or their offence, to be inserted in any newspaper or newspapers printed and circulated in the county of Middlesex; and the proprietor or proprietors, printer or printers, or any other person or persons concerned therein, are hereby authorized to print the same, when he, she, or they is or are required to do so by or by order of the said vestrymen; and he, she, and they is and are hereby indemnified from any prosecution or prosecutions, action or actions, for inserting or causing the same to be inserted in such newspaper or newspapers, by and from any person or persons whomsoever, any law, statute, or usage to the contrary notwithstanding.

Names, &c. of persons guilty of subsequent offence, to be inserted in the newspapers.

S. 37. Provided always, and be it enacted, that no person who shall be nominated and appointed, and shall have served the said office of inspector within the said parish, or shall have paid the fine for refusing or neglecting to serve the same, shall be again summoned to serve the said office in less than seven years after the end of the year of such former service, or in respect of which such fine shall have been paid; and no person shall be liable to serve the said office who shall be of the age of 60 years or upwards, anything in this Act contained to the contrary notwithstanding.

Inspectors not to serve twice in seven years, nor after 60 years of age.

S. 38. And be it further enacted, that there shall be provided and kept at the workhouse in the said parish a common balance, and common weights, sealed according to the standards in the Exchequer, or such other standard as shall be by law used in the county of Middlesex, not to be removed from the said workhouse, and a duplicate or duplicates thereof, to be used by the said inspectors in the execution of their duty; which said balances, weights, and measures shall be paid for out of any of the monies in the hands of the treasurer or treasurers to the said vestrymen; and it shall be the duty of the master of the said workhouse, or any other person to be authorized and appointed by the said vestrymen for that purpose, to attend at the said workhouse on every Thursday or oftener in every week if he shall be thereunto required by the said vestrymen, for the special purpose of sizing, sealing, marking, or stamping all balances, weights, and measures that may be brought by any inhabitant or inhabitants of the said parish; and every such master of the said workhouse for the time being, or such other person as aforesaid, is hereby required, on application to him made, to size and seal and also to mark or stamp all balances, weights, and measures which shall be brought to him for that purpose, and which shall be agreeable to the standard aforesaid; and the said master of the workhouse shall demand and receive for each balance, weight, and measure so by him sealed and marked as aforesaid, for his pains and trouble therein, the fees following, and no more; (that is to say),

Standards of weights, &c. to be kept at the workhouse.

Master of workhouse or other person to mark weights, &c.

Fees.

For every bushel, the sum of fourpence:
For every half bushel, the sum of twopence:
For every peck, half peck, and quarter peck, the sum of one penny:
For every sack, the sum of twopence:
For every ale, beer, milk, or other measure, the sum of one penny:
For every one hundredweight, the sum of fourpence:
For every half hundredweight, the sum of twopence:
For every quarter of a hundredweight, the sum of one penny:
For every weight from a quarter of a hundred to a pound, the sum of one halfpenny:
For every weight under a pound, and every balance, the sum of one farthing.

And all balances, weights, and measures belonging to persons dealing by weight or measure within the said parish of Saint Pancras, not marked or stamped in manner before directed, shall be deemed unlawful; and it shall and may be lawful to and for the said inspectors, or any four or more of them, and they are hereby authorized and required to destroy all such unlawful balances, weights, and measures, and to amerce the owner or owners thereof in such penalty or penalties as herein-before mentioned.

Balances, &c. under former Act to be good.

Provided always, that all balances, weights, and measures which have been sized, sealed, and marked according to the directions of the said recited Act of the forty-fifth year of his present Majesty shall be deemed and considered to be duly sized, sealed, and marked according to the provisions of this Act.

Application of money.

S. 39. And be it further enacted, that the said master of the workhouse for the time being, or such other person as aforesaid, after all necessary charges and expenses attending the sizing, sealing, marking, and stamping such balances, weights, and measures as aforesaid shall have been deducted, shall and he is hereby required and directed, half-yearly or within one calendar month next after the expiration of every half-year, to pay or cause to be paid to the directors hereinafter mentioned, one moiety of the clear money arising from or on account of such sizing, sealing, marking, or stamping as aforesaid, to be applied to the maintenance of the poor of the said parish.

Inspectors may be fined.

S. 40. And to the intent that the good purposes intended by this Act may not be defeated, be it further enacted, that if any inspector shall in any manner neglect or refuse to execute the duty of his office, it shall and may be lawful to and for the said vestrymen upon complaint made to them of any such neglect or refusal, to fine such inspector for every such offence or neglect in any sum not exceeding ten pounds nor less than forty shillings, to be applied for and towards the maintenance of the said poor; and all and every the inspectors of balances, weights, and measures appointed by or in pursuance of the directions of the before-recited Act of the forty-fifth year of the reign of his present Majesty, shall have and are hereby declared to have and be invested with such and the same powers, jurisdictions, and authorities, and shall be under the same control and jurisdiction, as the inspectors to be appointed under or by virtue of this Act, anything herein contained to the contrary notwithstanding.

Inspectors appointed under former Act to have same powers and subject to same control as those appointed under present Act.

Penalty on persons interrupting or assaulting officers.

S. 89. And be it further enacted, that if any person or persons shall at any time or times obstruct, hinder, or molest any inspector of weights and measures, or other officer or officers, workmen, person or persons whomsoever, who is, are, or shall be employed by virtue of or under this Act, in the performance or execution of his, her, or their duty, or of any of the matters or things to be done in virtue or in pursuance of this Act, every such person so offending shall for every such offence forfeit and pay any sum not exceeding five pounds.

Conflicting power of inspection, under Charter or Letters Patent, and Statutes.

There are other local and personal Acts conferring special powers relating to weights and measures which have been brought incidentally under the notice of the Standards department. For instance, the local and personal Act 29 & 30 Vict. c. 222, passed in 1866, with respect to the borough of Bradford in Yorkshire. The preamble recites that the right of appointing an inspector of weights and measures for the borough belongs or is claimed to belong under Letters Patent granted by King Edward I. and by Charles I. to the manor of Bradford, which comprises the borough, and that great inconveniences result from the exercise of that right, the corporation having power, if they think fit, to appoint an inspector of weights for the borough; that the corporation is desirous, and the lady of the manor is willing, that the manorial right of appointing an inspector of weights and measures should be included in the lease to be granted to the corporation for 999 years, under the authority of the Act, of the market place and hereditaments at Bradford. A copy of this lease is appended to the Act.

Under s. 6 of this Act the corporation are empowered to take the lease and other rights so agreed to be leased.

And s. 40 is as follows :—

"The corporation may from time to time provide such weights and measures, and weighing and measuring apparatus, and such weigh-bridges and weighing machines and places for weighing and measuring, as they shall think proper and sufficient for the borough, and the same respectively shall be deemed to be part of the market places."

It is here to be observed,—

1. That the *sole* right of appointing an inspector of weights and measures within the manor of Bradford is claimed under these Royal Letters Patent.

2. That as the borough is comprised in the manor, and the corporation of the borough are empowered under Statute to appoint an inspector of weights and measures, there is therefore a conflicting authority in this respect.

3. That there are many other manors in the kingdom (for example, the manor of Halifax, comprising the boroughs of Halifax and Wakefield,) also claiming the right of local inspection of weights and measures, and furnished with copies of the imperial standards, and consequently it is probable that there are many other cases of similarly conflicting authorities.

4. That the unlimited and exceptional power granted by s. 40 to the corporation to provide "such weights and "measures," &c. "as they shall think proper," appears

Appendix XII.—*continued.*

quite inconsistent with the provisions of the Weights and Measures Acts in force generally throughout the kingdom.

It is suggested that not only the exceptional powers thus exercised by the three Metropolitan parishes, but also all other similar powers, whether under private Acts, ancient charters, or otherwise, should now be made by law to cease, and one general system only be enforced throughout the kingdom. With this object, attention should be called to the large powers exercised by the Founders' Company in the City of London.

The rights granted by charter to the Founders' Company were specially reserved to them by s. 28 of the Weights and Measures Act of 1834, 4 & 5 Will. 4. c. 4., and this reservation was confirmed in the following year by s. 43 of 5 & 6 Will. 4. c. 63.

In the meantime, evidence respecting these rights was produced before the Select Committee of the House of Commons of 1835 on the Weights and Measures Acts, by Mr. John Gray, the clerk of the company. (Qu. 657–700.)

The following extracts from the charter of the Founders' Company, granted by King James I. in 1614, were laid before that Committee:—

"James, by the grace of God, King of England, Scotland, France, and Ireland, defender of the faith, &c. To all to whom these presents shall come, greeting. Whereas it is the part of our regal office to see our people be justly dealt withal, and (amongst other things) to care that in weights and measures our subjects do deal one with another after a true proportion, wherein (as we are informed) there is a great abuse used, in that the weights made of brass are ill and untruly made, which groweth as well by the unskilfulness of the makers as by the corrupt and false making thereof. And for that most of the makers of the said brass weights which are dispersed through our realm of England, as also the melters and workers of brass and copper wares, are dwelling and abiding in or about our City of London, but are not reduced into any certain company, nor the men of that mystery are not governed, nor their works searched and viewed as in other mysteries is used where there is a settled corporation; we, therefore, to the end that these false and unskilful makers of brass weights and melters of brass and copper metals may be discovered and reformed, and that true and just weights and works of copper and brass may be had and used amongst our people, and for the prevention of such abuses as may occur therein hereafter, of our especial grace, certain knowledge, and mere motion, have granted, constituted, declared, and ordained, and by these presents for us, our heirs and successors, do grant, constitute, declare, and ordain, that all and every our loving subjects the Founders of our City of London and the suburbs thereof, and others the freemen of the said mystery, shall from henceforth be one body corporate and politic, &c., &c.

"And further we will, and for us, our heirs and successors, do grant by these presents unto the master, wardens, and commonalty of the said mystery of founders, and to their successors, that they the said master, wardens, and commonalty of the said mystery shall for ever hereafter have, take, and enjoy, the sizing and marking of all manner of brass weights made or wrought, or to be made or wrought within our said City of London or within three miles compass thereof, or which shall be sold, uttered, or kept for sale within our City of London or three miles compass thereof, to be executed, done, and performed by the said master and wardens for the time being, or by such other their officers and ministers as by them shall be sworn and appointed thereunto. And our further will and pleasure is, for the better execution thereof, that the master and wardens of the said company shall have the view and search of all brass weights and of brass and copper weights whatsoever within the said City of London and three miles compass thereof, and of all brass weights of any kind made beyond the seas, and brought into the city, or within three miles compass thereof, to be sold; and that the said weights which are true and sufficient shall, before they be sold or uttered, be sized by the standard at Founders' Hall, and marked with their common mark, and then to be sealed at Guildhall if they be avoirdupois, and at Goldsmiths' Hall if they be troy weights, and if they shall be found defective to be defaced. And also, that all manner of brass weights shall be by the makers, workers, and owners of them and every of them from time to time brought to the common hall of the master, wardens, and commonalty of the said mystery of founders, and there to be sized and made lawful and good according to our standard of England, and then to be marked with the common and usual mark of the said master, wardens, and commonalty heretofore used and accustomed, being the form of an ewer."

The following Table of Fees taken by the Founders' Company was also given in evidence before the Committee of 1834:—

FOUNDERS' COMPANY.

Charges for Adjusting and Stamping Brass Weights at Founders' Hall.

	Avoirdupois.	Troy.
	Outside Weight.	
256 oz. down to ¼ of an oz., a set	s. d. —	s. d. 5 6
224 ditto ditto	3 6	—
128 ditto ditto	—	3 9
112 ditto ditto	2 6	—
64 ditto ditto	1 6	2 3
32 ditto ditto	1 0	1 6
16 ditto ditto	0 9	1 3
8 ditto ditto	0 8	1 0
4 ditto ditto	0 7	0 10
2 ditto ditto	0 6	0 9
1 ditto ditto	0 6	0 9
	Flat Weights.	
7 lb. to 2 lb., per dozen	1 0	
1 lb. to ¼ lb., „	0 6	
2 oz. to ¼ oz. or ½ dram, per dozen	0 4	
	Bell Weights.	
56 lb., per dozen	12 0	
28 lb. and 14 lb., per dozen	6 0	
7 lb. to 2 lb. „	1 0	
1 lb. to ¼ oz. „	0 9	

The Founders' Company claim the right of adjusting, marking, and making legal all manner of brass weights sold, uttered, or used, and that weights sized and marked at Founders' Hall are legal for use throughout the kingdom.

That these rights are still enforced by them appears from the following circular:—

Copy of Circular issued by the Founders' Company.

Sir,

I am directed by the masters, wardens, and court of assistants of the Founders' Company to inform you, that by virtue of the charter granted to the Founders' Company by his late Majesty King James the First, and the powers therein contained which are specially reserved to the company by the 43rd section of the 5 & 6 Will. 4. c. 63., all brass weights sized and stamped by the Founders' Company are good and legal weights for use throughout the realm.

I am also directed to send you the following extracts from the charter, showing the rights vested in and exercised by the company as to the sizing, stamping, and making legal all manner of brass weights.

(Extracts as above shown.)

The above extracts fully show the company's rights under their charter, reserved by the Weights and Measures Act, and to enable you to distinguish those weights which have been made legal by the Founders' Company and the City of London, the stamps impressed upon them are as under, which weights are legal and current throughout the realm, and do not require the local stamp of inspectors.

Avoirdupois Weights.

The 2 oz. weights and upwards, thus,—

Being the company's mark of an ewer between the year 1826, and the old-fashioned A (avoir), with the arms of the City of London and the Queen's crown.

The 1 oz. weight thus,— The same without the date.

The ½ oz. down to ½ dram, thus,—Ewer, crown, and shield.

Troy Weights.

Marked by the company only, as under—	18 26
The 4 oz. weights and upwards, thus,—	Ewer and date twice.
The 2 oz. weights down to a ¼ of an ounce, thus,—	Two Ewers.
All weights below a ¼ of an ounce, thus,—	One ewer.

Appendix XII.—*continued.*

Your attention being hereby called to the rights of the Founders' Company, I am directed to inform you that any infringement of them will be followed by immediate legal proceedings to enforce the same.

I remain, Sir,
Your most obedient servant,
(Signed) JOHN GRAY, jun.,
Clerk.

Founders' Hall,
1st May 1845.

The average amount of fees received by them in each of the seven years previous to 1834 was about 100*l.* The average number of brass weights adjusted was about 4,000 dozen. The amount at the present time cannot be stated, as the Founders' Company have made no return, although one of the printed forms of the Commission was sent to them. (See Appendix III., p. 53.) But it is probable that the amount of the fees is now about the same as in 1834.

The Founders' Company usually employ one of the weights and measures makers in the City of London to attend at Founders' Hall, and to adjust and stamp the weights under the superintendence of the beadle of the company. This duty was formerly performed by one of the firm of Messrs. Warner, afterwards by Messrs. De Grave, and now by Messrs. Nicholl and Fowler.

As an illustration of the public inconvenience arising from the exercise of the privileges of the Founders' Company, it may be stated that information has been given to the Standards department that weights of 32, 16, and 8 oz. troy, such as have been lately seized by one of the inspectors of Middlesex as illegal, not being duly stamped, are now stamped at Founders' Hall, and their use thus legalised.

It has also been the practice in several districts of inspection of weights and measures (for instance, Truro, Tumbridge, &c.) to send the inspectors' standards to be re-verified at Founders' Hall, instead of at the Standards Office.

Qu. 696-7. It should be observed that the charter directs that all avoirdupois weights marked by the Founders' Company be afterwards stamped at Guildhall, and all troy weights at Goldsmiths' Hall. But no weights are now stamped at Goldsmiths' Hall, and such stamping appears to have been discontinued in 1679. It is stated to be the practice at the present time to stamp, though not to adjust, all the brass weights at Guildhall, after being marked at Founders' Hall, and to charge the usual fee for stamping, and in fact the City claims that as a right. Double fees have thus to be paid on all these brass weights for a single verification. The Committee of 1835 asked the Secretary of the Company whether it would be not possible to consolidate the powers of the two halls, protecting the pecuniary interest of each, and he said he thought it would.

If it be thought expedient to abolish the rights thus granted by charter to the Founders' Company, and so long exercised by them, in relation to brass weights, it will be a question how far they may be entitled to compensation for any consequent loss of profits arising from fees, and out of what fund it should be provided.

Question of errors to be tolerated in weights and measures.

In reply to applications lately made from this department to some of the principal local inspectors of weights and measures, as to the opinion they had formed from their practical experience upon the question whether any or what allowance of error in public weights and measures should be sanctioned by law, the following answers have been received:—

Mr. Jas. Johnston, chief inspector, Liverpool,—

"All weights should be kept as nearly as possible in accordance with the Imperial standards, and scales of every description used in buying or selling goods should be kept accurately balanced. It would be a great evil to legalise or sanction any deficiency or incorrectness in either, but the inspectors of this town have always made allowance for the slight deficiency of weights, by usual wear and corrosion of the metal, brass, or iron, so that they do not as a rule seize a 56 lb. for being 1 oz. light, or 1 oz. for being 4 or 6 grains light, except the ounce had been wilfully filed down, as occasionally detected.

"The practice of the out-door inspectors at this office has been for many years when they find weights or measures a little deficient from common wear, to order the owners to have them adjusted immediately, and not to summon traders unnecessarily before the magistrates for trivial unavoidable offences."

Mr. R. Beckley, inspector, Sunderland—

"To the question whether we should depart from the theory that all weights and scales should be absolutely just, my answer would be,—No, not in theory, not in law, but in practice we cannot help it. To let down the standard required ever so little would be in effect to destroy all standards whatever. The magistrates do not convict for trivial offences. During the last 10 years I have obtained upwards of 1,000 convictions, but my practice is not to seize a 56 lb. weight under 1 oz. light, a 28 lb. under ½ oz., a 14 lb. under ¼ oz., a 1 lb. under 1 dram light, or 1 oz. under 1 dram, except under very special circumstances."

Mr. Thos. Cooke, inspector for Westminster,—

"Considers that the only allowance for error should be the turn of the scale. With regard to the 56 lb. weight 20 grains would be allowed; respecting all smaller weights, he endeavours to adjust them as near standard as possible."

Mr. John F. Johnson, inspector, City of London,—

"The office of inspectors for the City of London being a strictly salaried one, and no portion of the penalty paid to them, the tradesmen, &c. are never summoned for trivial offences, therefore no allowance would have to be made."

Mr. James Gregg, inspector at Hounslow, for District No. 4, Middlesex,—

"I think it would not be advisable to allow any draught in scales. If any were allowed by law the seller would take advantage of it, and the public would never get their proper weight. I have been inspector of weights and measures for upwards of 14 years, and the manner in which I discharge my duty respecting the same is not to take proceedings for very trivial offences in the first instance, but to caution the parties. And after that caution, if the offence is repeated, I then take proceedings against the parties, and the magistrates generally convict in a small fine for the first offence.

"Respecting deficient weights, my answer is the same as that referring to balances. When I find a small deficiency I caution the parties to have them adjusted."

Mr. James Daws, inspector for Newington Division, county of Surrey,—

"By desire of the Surrey magistrates he always allows the turn of the scale, and is decidedly of opinion that a remedy or small amount of error should be allowed. Most good inspectors do allow a turn of the scale."

Mr. D. Faulkner, inspector at Clerkenwell, District No. 2, County of Middlesex,—

"No error upon the public weights should be recognized. Weights should be stamped equal to the standard, and if upon subsequent inspection they are found light or otherwise incorrect, the inspector ought to use his discretion as to whether the person ought to be summoned for having them in possession. When a person is summoned for such offence it is in the province of the justices to decide whether the case be trifling or not.

"The question of the condition of the balances used by inspectors of weights and measures, and the amount of difference they will show, are connected with the question of allowance of error in the comparison of weights and measures in common use.

Mr. Johnston, the inspector at Liverpool, states,—

"Our testing beams in the workshop, as well as those used by the out-door inspectors, are kept in as great a state of accuracy as possible, so that for a few months after being received from Messrs. De Grave, and after being adjusted, the larger beams will turn from 2 to 4 grains, with 56 lbs. in each scale; consequently would show an error in 56 lbs. to that amount. But such great accuracy does not long continue, as from 2 to 4 tons are frequently weighed by one of these 56 lb. beams in a day. These remarks apply in a proportionate degree to all our smaller beams."

It will be for the Commission to consider this question of the allowance of error in weights and measures used for sale, &c., or whether in their opinion it may be sufficient to recommend the provision by law that a magistrate be empowered to dismiss, without a penalty, if he shall so think fit, any case brought before him of trivial inaccuracies in weights, measures, or balances, when there is no fraudulent intent.

Gas measuring standards, and inspection of gas meters.

It now becomes necessary to refer to the local standards for measuring gas, and to the inspectors of gas meters and their duties, as well as to the regulations under which they are established by a distinct statute.

Provisions of Sale of Gas Act, 1859.

Gas measuring standards were first established under the Sale of Gas Act, 22 & 23 Vict. c. 66, passed on 13th August 1859. The legal standards constructed in pursuance of this Act, deposited in the Standards department, and verfied by the Astronomer Royal and Professor Miller in 1860, are as follows:—

1. The measure of a cubic foot, containing 62·321 lbs. avoirdupois weight, of distilled or rain water, weighed in air at the temperature of 62° Fahr., the barometer being at 30 inches. This is the only legal standard or unit of

Appendix XII.—*continued.*

measure for the sale of gas by meter under sect. 1 of the Act. The standard measure is a metallic vessel or bottle, constructed of tinned copper, in shape a cylinder with a cone at each end, the upper cone having a small cylindrical neck for the introduction of water, and the lower cone a tap for its discharge.

An apparatus was constructed for supporting this cubic foot standard and facilitating its use, called a *transferrer*. But after some experience another kind of apparatus, consisting of a tank for water, with cords and pullies worked by a winch was constructed, and was found more convenient for use in comparisons, and enabling them to be made with greater accuracy.

2. An auxiliary standard weight of 62·321 lbs., constructed of hard gun-metal, used for the original verification of the standard unit of gas measure.

From this standard unit, the following secondary standards have been constructed, which are the official gas measuring standards used in the Standards Department for the comparison and verification of copies required for the several districts of gas meter inspection throughout the United Kingdom:—

A 10 cubic feet gas measuring standard.
5 „ „ „
1 „ „ „

The total expense of constructing the gas measuring standards and apparatus and three sets of copies amounted to 3,658*l.* 7*s.* 9*d.*

533/1861. Under sect. 3 of the Act, verified copies of the official gas measuring standards, which had been constructed under Treasury directions, were sent to the three Metropolitan cities of London, Edinburgh, and Dublin. Three additional copies of the standard cubic foot bottle, transferrer, and 62·321 lb. weight were also constructed, but were not sent to the three Metropolitan cities. In fact, the local authorities at these places objected to receive the copies of the gas measuring standards, which they never use, and to the care, responsibility, and expense of their safe custody.

Sect. 4 enacted, so far as regards every county, county of a city, or county of a town, that in England the justices of the peace in general or quarter sessions assembled, and in Scotland the justices of the peace at a meeting to be called for the purpose by the sheriff of each county, should, within nine months after the passing of the Act, and so from time to time at any general or quarter sessions, or meeting so called,—

1. Determine the number of copies of standard gas holders and apparatus required for testing meters within their respective jurisdictions.
2. Provide such copies, officially verified and stamped, together with stamps for stamping meters.
3. Fix places at which such copies and stamps should be deposited.
4. Appoint a sufficient number of inspectors to discharge the duties specified in the Act, and determine their remuneration.
5. Allot to each inspector a separate district, to be distinguished by a number or mark applied thereto on the stamp.

They were also empowered to suspend or dismiss any inspectors so appointed, and to appoint additional inspectors as occasion might require.

It would thus appear that it became imperative by law upon the justices for *every county* in Great Britain, supplied with gas, to carry out these provisions, and provide gas measuring standards, stamps, &c.

So far as regards *boroughs in England and royal burghs in Scotland*, similar authority was given by sect. 4 to adopt and carry out the Act and its provisions, excepting that a proviso is added to the following effect:—

1. That it was not made compulsory to adopt the provisions of the Act and provide gas measuring standards, &c., except in county towns where gas is used.
2. That the justices for the county and the magistrates of any royal burgh within such county might agree to unite the whole or a portion of the county with the royal burgh, and appoint one inspector, and provide gas measuring standards, &c., at their joint expense, to be used within such united district.
3. That in every borough in England, where there is a town council, not being a manufacturer or seller of gas, such town council might adopt the Act, within six months from its passing, by a vote of a majority of the members duly called for the purpose.

If no such resolution was passed within such time, the justices for the county should, at their next general or quarter sessions, carry out the provisions of the Act within such borough.

In all boroughs in which the town council manufacture or sell gas, similar powers were given to the justices of such boroughs as were given to town councils not being manufacturers or sellers of gas.

In Ireland, sect. 5 directs that, so far as regards every borough and town, the town council or town commissioners, not being manufacturers or sellers of gas, shall, within nine months from the passing of the Act, and so from time to time, determine the number of gas standards required for testing meters, and carry out the other provisions of the Act, as in England. In all boroughs and towns in which the town councils or commissioners are manufacturers or sellers of gas, the justices of such boroughs or towns, and the grand jury of the county in which such boroughs and towns not having a separate commission of the peace are situate, are to have the like powers given to town councils and commissioners not being manufacturers or sellers of gas.

The adoption of the provisions of the Act thus appears to have been made compulsory on every borough and town in Ireland supplied with gas.

By sect. 6, the local gas measuring standards were to be compared and verified at the Exchequer on payment of such fees as were then payable on a set of measures. (These fees were subsequently abolished by sect. 9 of the Standards Act, 1866.)

By sect. 7, the expense of providing copies of the gas measuring standards, stamps, &c., was to be defrayed out of the county or local rates. Provision is contained in sect. 3 for the requisite stamps to be made of a uniform design under Treasury directions, with a varying number to distinguish each district. 100 steel stamps, each bearing a progressive number, were accordingly supplied to this department, the actual cost of 1*l.* for each stamp being defrayed in the first instance by the public, and afterwards to be repaid out of the respective local funds, in every case where a stamp was issued for a district provided with verified copies of the gas measuring standards. The sums thus repaid and received in the department, together with the verification fees, were accounted for at a subsequent period, and paid over to the paymaster-general as a public receipt.

By sect. 18 of the Act of 1859, no meter was to be *fixed for use* after 12 months from the passing of the Act (extended by the Act of 1860 to 13th Oct. 1861), unless duly stamped by an inspector, under a penalty of 5*l.* By the previous sect. 17, *all gas meters in use* were required to be stamped after the expiration of 10 years from the passing of the Act (13th Oct. 1870), under a penalty not exceeding 5*l.* for knowingly using an unstamped meter and its forfeiture.

By sect. 20, inspectors are empowered to enter any house or place and inspect, &c. gas meters, at the request and expense of any buyer or seller of gas, who shall have given 24 hours notice in writing to the other party to the contract; and, if necessary, to remove any meter for further examination and testing.

Further amending Acts in 1860, 1861, and 1864.

In consequence of the delay in constructing the official gas measuring standards and apparatus the Act of 1859 was amended in the following session by an Act 23 & 24 Vict. c. 146., and the time extended as if the 13th October 1860 had been the date of the Act of 1859 taking effect, so far as anything was required to be done within a specified time after the passing of the same. *A proviso was also inserted that it should not be compulsory on the county magistrates to adopt the Act of* 1859.

A further amending Act was passed in 1864, 27 & 28 Vict. c. 96., which recited the provisions of the Act of 1859 to make it compulsory on counties and royal burghs being county towns, to adopt the Act, and of the amending Act of 1860, to leave it optional in counties, and it empowered the magistrates of certain royal burghs, who had not adopted the Act, and whose jurisdiction had been extended, to bring the Sale of Gas Act into operation in their respective districts within a limited time specified.

In the meantime under the provisions of an Act of 1861, 24 & 25 Vict. c. 79., for amending the Metropolis Gas Act of 1860, the powers conferred upon the justices of the peace by the Sale of Gas Acts of 1859 and 1860, were, so far as relates to the metropolis, transferred to the Metropolitan Board of Works.

Upon the completion of the official gas measuring standards and apparatus, the Treasury Minute of 24th February 1860 directed the comptroller general of the department to verify and stamp such copies as shall be brought to this office on behalf of justices, magistrates, or town councils, as provided in the Act of 1859, if found on comparison to be correct.

There is no provision in the Sale of Gas Act for the re-verification of the local gas measuring standards, nor for the issue of any official indenture of verification. No

Appendix XII.—*continued.*

Parliamentary returns of proceedings under these Acts.

indenture or other certificate of verification of copies of the official gas measuring standards has ever been issued from this department.

Returns showing the steps taken to carry out the provisions of the Sale of Gas Act of 1859, so far as relates to this department, were made to Parliament in the following papers:—

No. 100 of 1860.
293 „
547 „
339 of 1861.
550 „

Returns of the number of gas measuring standards verified at the Exchequer were made to Parliament in 1861, and in 1862. Copies of all these Commons' papers have been laid before the Standards Commission. Attention may be particularly called to the letter from the Board of Trade of 16th March 1860, at page 7 of No. 293 of 1860, as bearing upon the duties to be executed by the department relating to gas measuring standards. No. 9 of 1861. No. 117 of 1862.

The total number of counties, boroughs, and towns who, up to the present time have adopted the Act, and have been supplied with copies of the gas measuring standards, and the requisite stamps, is as follows:— List of places where copies of gas measuring standards are provided.

ALPHABETICAL LIST of PLACES for which Gas Measuring Standards have been verified, Number of Gas Standards verified, Dates of their verification, and Number of Inspector's Stamps issued.

ENGLAND.

Counties.	County of a City or County of a Town.	Boroughs and Royal Burghs.	Number of Gas Standards verified. 10 ft.	5 ft.	1 ft.	Total.	Date of Verification.	Number of the Stamp supplied.
Gloucestershire	- - - -	- - - -	—	1	—	2	1861, Dec. 6	No. 38.
			1	—	—		„ Dec. 10	
	Bristol (City) -	- - - -	1	—	—	2	„ May 3	No. 5.
			—	1	—		„ May 17	
	Exeter (City) -	- - - -	1	—	—	1	„ Aug. 26	No. 12.
	Kingston-upon-Hull	- - - -	1	—	—	1	„ Dec. 16	No. 41.
	Lincoln (City) -	- - - -	1	—	—	2	1862, July 31	No. 50.
			—	1	—		„ Aug. 2	
	London (City) -	- - - -	1	—	—	14	1861, April 16	Three of No. 8.
			1	—	—		„ April 29	
			1	—	—		„ May 13	
			1	—	—		„ May 25	
			1	—	—		„ June 3	
			1	—	—		„ June 24	
			1	—	—		„ June 25	
			1	—	—		„ July 15	
			1	—	—		„ July 17	
			1	—	—		„ July 24	
			1	—	—		„ Aug. 2	
			1	—	—		„ Aug. 16	
			2	—	—		1862, July 12	
	Worcester (City) -	- - - -	1	—	—	1	„ Oct. 1	No. 51.
	York (City) -	- - - -	1	—	—	1	„ July 7	No. 49.
		Ashton-under-Lyne -	1	—	—	1	1861, May 7	No. 6.
		Bath - - -	1	—	—	2	„ Nov. 29	No. 37.
		„ - - -	—	1	—		„ Dec. 9	
		Birmingham - -	1	—	—	3	„ Oct. 16	No. 23.
		„ - -	1	—	—		„ Oct. 18	
		„ - -	1	—	—		„ July 7	
		Blackburn - -	1	—	—	1	1862, April 3	No. 46.
		Bradford - -	1	—	—	1	1866, Sept. 12	No. 53.
		Brighton - -	2	—	—	2	1862, June 24	No. 48.
		Bolton - - -	1	—	—	1	1861, Sept. 26	No. 19.
		Carlisle - -	1	—	—	1	„ June 6	Two of No. 9.
		Kingston-upon-Thames.	1	—	—	10	1862, Jan. 22	No. 45.
			1	—	—		„ Jan. 29	
			1	—	—		„ Feb. 12	
			1	—	—		„ June 20	
			1	—	—		„ June 23	
			1	—	—		„ June 28	
			1	—	—		„ June 26	
			1	—	—		„ July 8	
			1	—	—		„ July 17	
			1	—	—		„ Aug. 1	
		Lancaster - -	—	1	—	1	1861, April 27	No. 4.
		Liverpool - -	—	1	—	4	„ Oct. 2	Two of No. 13.
		„ - -	1	—	—		1862, Jan. 25	
		„ - -	—	1	—		„ April 3	
		„ - -	1	—	—		1861, Aug. 27	
		London: Metropolitan Board of Works.	1	—	—	44	„ Oct. 17	Districts:— Western, No. 28. Eastern, No. 29. Southern, No. 30. Central, No. 39.
			1	—	—		„ Oct. 22	
			1	—	—		„ Oct. 24	
			1	—	—		„ Oct. 26	
			1	—	—		„ Oct. 30	
			1	—	—		„ Nov. 5	
			1	—	—		„ Nov. 7	
			1	—	—		„ Nov. 13	
			—	1	—		„ Nov. 14	
			—	1	—		„ Dec. 2	
			1	—	—		„ Dec. 6	
			1	—	—		„ Dec. 9	
			—	1	—		„ Dec. 11	
			1	—	—		„ Dec. 12	
			1	—	—		„ Dec. 13	
			—	2	—		„ Dec. 14	
			1	1	—		„ Dec. 19	
			1	—	—		„ Dec. 20	
			—	1	—		„ Dec. 21	
			1	—	—		„ Dec. 28	
			1	—	—		„ Dec. 31	
			1	—	—		1862, Jan. 22	
			1	—	—		„ Jan. 24	
			1	—	—		„ Jan. 28	
			1	—	—		„ Feb. 7	
			1	—	—		„ Feb. 11	
			2	—	—		„ June 30	
			—	1	—		„ July 2	

Appendix XII.—*continued.*

Counties.	County of a City or County of a Town.	Boroughs and Royal Burghs.	Number of Gas Standards verified. 10 ft.	5 ft.	1 ft.	Total.	Date of Verification.	Number of the Stamp supplied.
			—	1	—		1862, July 4	
			1	—	—		„ July 10	
			—	1	—		„ July 17	
			—	1	—		„ July 19	
			1	—	—		„ Aug. 16	
			1	—	—		„ Aug. 29	
			1	—	—		„ Sept. 1	
			—	1	—		„ Sept. 5	
			1	—	—		„ Sept. 30	
			1	—	—		„ Oct. 3	
			2	—	—		„ Dec. 2	
			1	—	—		„ Dec. 6	
		Louth	1	—	—	1	„ Sept. 9	No. 14.
		Leeds	2	—	—	3	1861, Sept. 12	No. 16.
		„	—	1	—		„ Oct. 10	
		Lynn	—	1	—	2	„ Nov. 21	No. 34.
		„	1	—	—		„ Dec. 4	
		Manchester	1	—	—	4	„ Oct. 4	No. 24.
		„	1	—	—		„ Oct. 12	
		„	1	—	—		„ Oct. 26	
		„	1	—	—		„ Dec. 7	
		Middlesboro'	1	—	—	1	„ July 4	No. 10.
		Newport (Monmouth)	1	—	—	2	„ Oct. 25	No. 26.
		„ „	1	—	—		1862, March 25	
		Northampton	2	—	—	3	1868, March 26	No. 55.
		„	1	—	—		„ March 30	
		Oldham	1	—	—	4	1861, Sept. 12	No. 15.
		„	1	—	—		„ Sept. 13	
		„	1	—	—		„ Sept. 14	
		„	1	—	—		1865, June 18	
		Portsmouth	1	—	—	2	1861, Sept. 27	No. 22
		„	1	—	—		„ Oct. 3	
		Preston	1	—	—	2	„ Dec. 11	No. 40.
		„	1	—	—		„ Dec. 17	
		Reading	1	—	—	1	1863, Jan. 29	No. 52.
		Rochester	1	—	—	1	1861, Dec. 4	No. 36.
		Salford	1	—	—	2	„ Oct. 9	Two of No. 25.
		„	1	—	—		„ Oct. 11	
		Scarborough	1	—	—	2	„ Dec. 18	No. 42.
		„	—	1	—		1862, April 1	
		Sheffield	1	—	—	4	1861, April 16	Two of No. 2.
		„	—	1	—		„ Oct. 7	
		„	—	—	1		„ Oct. 10	
		„	—	—	1		1866, July 7	
		Shrewsbury	1	—	—	1	1868, Nov. 10	No. 56.
		Staleybridge	1	—	—	1	1861, Sept. 19	No. 17.
		Wakefield	1	—	—	1	„ May 24	No. 7.
		Wigan	—	1	—	1	„ Nov. 25	No. 43.
		Winchester	—	1	—	1	1862, June 20	No. 47.
		Yarmouth	1	—	—	1	1862.	
Total for England	1	7	38	108	25	2	135	—	—

WALES.

Nil.

SCOTLAND.

		Aberdeen	1	—	—	2	1861, April 24	No. 3.
		„	—	1	—		„ May 11	
		Ayr	1	—	—	1	„ Nov. 18	No. 33.
		Edinburgh	—	1	—	11	„ Aug. 19	Nine of No. 11.
		„	1	—	—		„ Aug. 31	
		„	—	1	—		„ Sept. 11	
		„	—	1	—		„ Sept. 21	
		„	—	2	—		„ Sept. 28	
		„	—	3	—		„ Oct. 1	
		„	1	—	—		1862, Jan. 21	
		„	—	1	—		„ Feb. 3	
		Dundee	1	—	—	2	1861, Nov. 13	No. 31.
		„	—	1	—		„ Dec. 12	
		Glasgow	2	—	—	3	1866, Nov. 29	No. 54.
		„	1	—	—		„ Dec. 6	
		Greenock	1	—	—	1	1861, Nov. 26	No. 35.
		Lanark	—	1	—	1	„ Nov. 18	No. 32.
		Perth	1	—	—	1	„ Sept. 23	Nos. 21 and 27.
Total for Scotland	—	—	8	10	12	—	22	—	—

IRELAND.

		Dublin	1	—	—	3	1861, Sept. 16	Two of No. 20.
		„	1	—	—		„ Sept. 17	
		„	—	1	—		„ Sept. 19	
		Cork	1	—	—	3	„ Sept. 23	Two of No. 18.
		„	1	—	—		„ Sept. 25	
		„	—	1	—		1862, June 18	
Total for Ireland	—	—	2	4	2	—	6	—	—

Appendix XII.—*continued.*

Counties.	County of a City or County of a Town.	Boroughs and Royal Burghs.	Number of Gas Standards verified.				Date of Verification.	Number of the Stamp supplied.
								No. of distinct Stamps not in duplicate.
England - - 1	7	33	108	25	2	135	—	42
Wales - - —	—	—	—	—	—	—	—	—
Scotland - - —	—	8	10	12	—	22	—	9
Ireland - - —	—	2	4	2	—	6	—	2
Total - 1	7	43	122	39	2	163	—	53

SUMMARY.

Total number of places - - 52.*
Total number of Standards - - 163.

Note.—The number impressed upon the last gasholder verified in this Department was 164, as one gasholder (No. 152), which was rejected, was never returned for verification. The number of the last stamp supplied to the inspectors was 56; No. 1 stamp is retained in the Department as a specimen of the inspector's stamps, and two distinct stamps, 21 and 27, appear to have been inadvertently supplied to Perth.

The law imperfectly carried out.

It thus appears that out of—
40 counties in England,
12 „ Wales,
34 „ Scotland,
in which it was made compulsory in 1859 to adopt The Sale of Gas Act, though left optional by the Act of 1860, only one county, Gloucestershire, has actually adopted the Act. But it is also practically adopted in Middlesex, &c., as being included in the Metropolitan district.

It is adopted in 40 cities and boroughs in England, and nowhere in Wales. Out of 28 royal burghs in Scotland being county towns, where, if supplied with gas, the adoption of the Act was made compulsory, four only have adopted it. Out of 72 municipal towns and 32 boroughs in Ireland, where its adoption was in like manner made compulsory, two boroughs only, Dublin and Cork, have adopted it.

As the intentions and construction of the Act of 1859 extend to providing by law the means of testing from time to time and securing the due accuracy of gas meters in common use, by establishing throughout the kingdom a system of stamping and inspection similar to that adopted for weights and measures, it becomes of importance to observe how far such legislative provision is now carried out, and to consider whether or how far any new regulations relating to weights and measures should be made applicable to gas meters.

Suggested amalgamation of verification, &c. of gas meters and of weights and measures.

With this view it may be suggested for the consideration of the Commission, that they should recommend as a general rule that the duties of comparing and stamping gas meters should be amalgamated with those of the Verifiers of weights and measures, one local officer being generally charged with these duties of verification, according to the principle adopted with regard to the official standards of weights and measures, and the gas measuring standards. Provision may be also made that in the Metropolitan district one or more distinct Verifiers of gas meters may continue to be appointed, and to exercise these duties.

Existing mode of inspection of gas meters and of weights and measures in Metropolitan District.

It may here be pointed out that under the existing laws the inspection of gas meters in the Metropolitan district is placed under the authority of the Metropolitan Board of Works, whilst the inspection of weights and measures is placed under the county magistrates and other local authorities. As the duties are analogous, it may deserve consideration how far both should be placed under the same authority.

No information as to the actual inspection of gas meters, as distinct from their verification, has reached the Standards Department, although provided for by law; it may be doubted whether in fact any such system of inspection actually exists at the present time, and as already stated, no inspection can be made except on requisition of one of the parties to the contract, and after 24 hours notice. Before recommending any alteration in the law in this respect, it will be desirable that evidence as to the practice of the Metropolitan inspectors of gas meters be laid before the Commission.

Proposed transfer to police of inspection of gas meters;

It would appear that any such inspection of gas meters that may be required in any districts other than the Metropolitan district may be left to the local Inspectors of weights and measures. This duty would involve the entering into premises and seeing that the gas meters were duly stamped and in due working order, and if necessary, removing them in order to be tested at the office of the verifier. In cases of offences against the law, the information of the inspector and his evidence would be requisite. He should be furnished with a certificate of the testing by the verifier.

and of petroleum.

The inspection of gas meters is analogous to the inspection of petroleum, with which the Inspectors of weights and measures are now charged under the Petroleum Act, 1868. In both cases the duties have been newly created by law within a recent period, and might be exercised by the same officers, together with the inspection of weights and measures.

Reference to former papers as to imperfections, &c. of existing system of inspection.

It may be sufficient here merely to refer to the information contained in Appendix I., and subsequent papers, of the mode in which the existing system of inspection of weights and measures was established; the provisions of law affecting this system; the recommendations hitherto made for its improvement by previous Standard Commissions and other authorities; as well as much evidence as to the working of this system, showing also the imperfections which now exist, and the necessity for a well-considered reform.

Summary of practical suggestions for improving existing system of local inspection.

By way of summary, it remains only to recapitulate and lay before the Commission some practicable suggestions for their consideration, in the form of resolutions recommending material changes and improvements in the weights and measures laws, and in the practice of the inspectors. An opportunity will be afforded by the Commission having before them the evidence of inspectors and others who have more personal experience on the subject, of further considering how far it may be expedient to adopt these suggestions and to embody them as recommendations in a future report, or of modifying or altering them as their better judgment may dictate.

Classification of subject.

The whole subject may be classed under seven heads:—
I. Separate and distinct system of verification and of inspection of weights and measures.
II. Verifiers of weights and measures, and districts of verification.
III. Duties of verifiers of weights and measures.
IV. Standards and other instruments of verification.
V. Inspection of weights and measures.
VI. Powers and duties of the Standards Department in relation to the verification and inspection of weights and measures.
VII. Other provisions.

I.—*Separate and distinct system of Verification and of Inspection of Weights and Measures.*

1. That it is expedient to establish a more uniform, efficient, and responsible system of local verification and inspection of weights and measures throughout the United Kingdom.

2. That the duties of verification and of inspection of weights and measures be exercised by distinct officers.

II.—*Verifiers of Weights and Measures and Districts of Verification.*

3. That the several districts of verification be so arranged that one duly qualified Verifier, responsible for the duties

* *Note.*—Since the date of this Paper, one more stamp has been issued, No. 57, on 15th December 1869, for the Borough of Newcastle-upon-Tyne; two 10 feet gasholders, and one of 5 feet having been verified and stamped for this borough. (21st May 1870, H. W. C.)

Appendix XII.—*continued.*

of verification, be appointed in each county, or large division of a county, as well as in each of the more populous cities.

4. That the duties of Verifiers of weights and measures and of gas meters be amalgamated.

5. That Sub-verifiers of weights and measures and of gas meters, subordinate to the Verifier, be appointed in such districts as may require them.

6. That the Verifiers give up their whole time to their duties of verification, such adequate remuneration being given to them and to the Sub-verifiers, by way of salary and not by fees, as the local authorities may determine, with the approval of the Board of Trade; and that the local authorities be empowered to award to them such retiring allowance as they may think fit.

7. That the Verifiers and Sub-verifiers in Great Britain be appointed by the county magistrates, or city corporations, the appointments of Verifiers being subject to the approval of the Board of Trade.

8. That previously to such approval, and in order to show that any such person is duly qualified to act as Verifier, a certificate be transmitted to the Board of Trade by the local authorities that the Verifier nominated for appointment has passed such special examination before the Civil Service Commission as the Board of Trade shall from time to time determine.

9. That such certificate from the Civil Service Commission be not required in first appointments under the new system, provided that the magistrates certify that such person is duly qualified to act as Verifier from his previous experience as inspector.

10. That it be recommended in future appointments of Verifiers that they be selected from the class of Sub-verifiers, and that it is expedient that these officers of verification be generally selected from the police, as being more especially qualified for the duties by their experience, habits, and knowledge of the locality and as an encouragement to their good conduct from looking forward to such appointments by way of promotion.

11. That the Verifiers be liable to suspension or dismissal by the local authorities, upon the approval of the Board of Trade; and that they be also subject to dismissal by the Board of Trade for misconduct, neglect, or inefficient performance of their duties.

12. That the expenses of verification in each district of verification be paid out of the local funds, and that all fees of verification be carried to such local funds.

III.—*Duties of Verifiers of Weights and Measures.*

13. That the duties of Verifiers of weights and measures consist in the custody, preservation, and use of the local Standards and other instruments of verification, and the due discharge of the several services connected therewith, including the testing and stamping of all legal weights and measures, and balances and other weighing instruments.

14. That they be charged with the comparison with the local Standards, verification and stamping of weights and measures, and of gas meters, except within the Metropolitan district.

15. That they be responsible that the local Standards and sub-standards in their districts be maintained in due conformity with the legal Standards, and be duly re-verified from time to time at the periods prescribed.

16. That they perform their duties according to such instructions as shall from time to time be furnished to them under the authority of the Board of Trade.

17. That they charge such fees as shall be duly authorized for the comparison and stamping, or for the adjustment of weights, measures, &c., and shall duly account for the amount to the local authorities.

18. That no weight or measure of any other denomination than the official standards, except multiples of the highest denominations, be stamped by the Verifier or be a legal weight or measure.

19. That all weights and measures, after re-adjustment, be compared and re-stamped by the Verifier, who shall charge the authorized fee.

20. That the Verifier shall not re-stamp, or charge any fee for comparing weights and measures previously stamped and found upon comparison to be correct, without re-adjustment.

21. That every Verifier keep a book in which he shall enter minutes of all weights and measures, compared, and stamped, or adjusted, with the amount of fees received by him.

22. That he make such returns, in connexion with the duties of verification and in such specified form, to the Warden of the Standards, as the Board of Trade shall from time to time require.

23. That they give such aid or assistance to the police in the discharge of their duties of inspection of weights and measures as they shall be required by the official instructions of the Board of Trade.

IV.—*Standards and other Instruments of Verification.*

24. That one complete set of all the local Standards required for his district be kept by the Verifier as Standards for reference, and that the weights belonging to such set be verified at the Standards Department not less than once in every five years, and measures every 10 years, and oftener, if required.

25. That all other Standards required in his district for testing commercial weights and measures (including a sufficient number of Standard 56 lb. weights for testing weigh bridges or weighing machines for heavy goods, waggons, &c.), be originally verified and officially stamped in the Standards Department, and shall be locally compared and re-verified by the Verifier, in presence of a witness, with his Standards for reference, within the like periods.

26. That a report of every such local re-verification attested by the signature of the witness, be transmitted by the Verifier to the Warden of the Standards, who shall, if he approve such re-verification, transmit his certificate accordingly, and the Verifier or other officer shall not use such Standards for comparing weights and measures, until such certificate shall have been received by him.

27. That the form, material, &c. of such local Standards, together with the balances, stamps, and other apparatus used by the Verifiers, shall be subject to such regulations as shall from time to time be issued by the Board of Trade.

28. That every Verifier have his Standards, balances, and other apparatus, ready for inspection at such place and time as may be fixed from time to time by any official Inspector of Standards duly appointed.

V.—*Inspection of Weights and Measures.*

29. That in all police districts, except as herein-after mentioned, the police be charged with the duties of inspecting weights, measures, and balances, and the detection and prosecution of offences against the weights and measures laws.

30. That they be also charged with the inspection of gas meters and of petroleum.

31. That the police in each district be furnished with Sub-standards of weights and measures, duly re-verified from time to time, for the comparison of weights and measures.

32. That such of the existing Inspectors of weights and measures, not being officers of police, as the local authorities of the several districts shall think fit, subject to the approval of the Board of Trade, shall continue to exercise their duties of inspection, in addition to the duties of verification, with the aid of the police, and shall receive such remuneration by way of salary and not by fees, as shall be in like manner determined.

33. That the local authorities in such districts be empowered to grant such retired or superannuation allowances to such inspectors as they shall think fit.

34. That the law in Great Britain be assimilated to the law in Ireland, by which inspectors are empowered to enter all shops and other places of trade, and not only to seize and render liable to forfeiture all beams, scales, and balances, as well as weights and measures which appear to be fraudulently unjust, but also if any fraud shall be wilfully committed in the using thereof; also to inspect the mode of weighing and measuring commodities, and by the adoption of the several provisions for prevention of fraud.

35. That the duties of inspection which consist of the testing the legality of weights, measures, and balances, be subject to such regulations as shall from time to time be issued by the Board of Trade.

36. That the chief officer of police in each district be more immediately charged with and responsible for the duties of inspection of weights and measures, and the custody and care of the instruments of inspection; the actual duties of inspection being performed in the several sub-districts by subordinate officers of police, acting under his directions, and specially selected for this purpose.

37. That the chief officer of police in each district shall make such returns, in relation to the inspection of weights and measures, to the Warden of the Standards, and in such specified form as he shall from time to time be required by the Board of Trade.

38. That the local authorities in each district be empowered to award such remuneration to the chief or other officer of police for the discharge of the duties of inspection

Appendix XII.—*continued.*

of weights and measures, as they shall think fit, with the approval of the Board of Trade. But it shall be lawful for the Board of Trade to revoke this approval in case of any neglect of duty in relation to the inspection of weights and measures by such officer.

39. That persons convicted of wilful fraud, or intent to defraud, in respect of weights, measures, or balances, or their use, or dealing in connexion therewith, be subject to heavier penalties than in cases where there appears to be no wilful fraud.

40. That in cases in which weights, measures, or balances may be found accidentally or trivially defective, without imputation of fraud or culpable negligence, the magistrates may, if they think fit, dismiss the case without inflicting a penalty.

41. That in all cases where quantities of commodities are made up in bags or parcels ready for sale in shops or public places, they shall have the weight or measure legibly marked upon them, and inspectors be empowered to weigh or measure the same, and if found unjust, to seize them, and inform against the offenders, who, on conviction, shall be liable to a penalty.

42. That the existing provisions of law for weighing coal sold in the metropolitan district be extended to the whole kingdom.

43. That all proportions of fines and penalties, in connexion with weights and measures, as shall be awarded to the officer informing, be carried to the local funds applicable to police expenses.

44. That all expenses of inspection of weights and measures in the several districts of inspection be paid out of the local funds.

VI.—*Powers and Duties of the Board of Trade in relation to the Verification and Inspection of Weights and Measures.*

45. That every appointment of Verifier of weights and measures, and the amount of salary awarded to him, be subject to the approval of the Board of Trade.

46. That previously to such approval, a certificate be transmitted to the Board of Trade by the local authorities, that the Verifier so nominated for appointment has passed such special examination before the Civil Service Commission as the Board of Trade shall from time to time determine.

47. That such certificate from the Civil Service Commission be not required in first appointments under the new system, provided that the magistrates certify that such person nominated is duly qualified to act as Verifier, from his previous experience as Inspector of weights and measures.

48. That two or more Inspectors of Standards be appointed by the Board of Trade as officers of the Standards Department, with adequate salaries and allowances for travelling expenses; and that they be subordinate to the Warden of the Standards, and report to him from time to time.

49. That each official Inspector of Standards be provided with sufficient copies of the official Standards for comparing and verifying the local Standards and apparatus in the several districts of verification and inspection of weights and measures. That he proceed from place to place within the district assigned to him, previously giving notice to the Verifier, or the chief officer of police, to have his Standards, balances, or other apparatus ready for inspection at such place and time as may be fixed from time to time by such official Inspector, so that each district of verification and of inspection may be visited at least once in each year.

50. That in case of any of the local Standards, balances, &c. being found to be defective beyond an allowance to be fixed and determined from time to time by the Board of Trade, the official Inspector shall require them to be immediately adjusted and duly re-verified, provided he shall deem them fit to be corrected as Standards; and if he shall find them to be defective or damaged so that they cannot be made fit Standards, he shall at once condemn them and cancel the official stamp, and have them broken up, so that they can no longer be used as Standards.

51. That authoritative instructions be from time to time issued by the Board of Trade to the several Verifiers of weights and measures, with the view of ensuring uniformity of action in the execution of their duties, and due compliance with the laws as construed by the highest legal authorities.

52. That similar instructions be issued to the chief officer of police, in the several districts of inspection of weights and measures, with the view of ensuring uniformity in the mode of testing the legality of weights, measures, and balances.

53. That such instructions shall comprise all necessary directions for the form, material, and mode of construction of the local Standards, together with the balances, stamps, and other apparatus to be used by Verifiers and by Inspectors of weights and measures, and for their preservation and use.

54. That such instructions shall also comprise directions for the form, material, and mode of construction of all weights and measures to be stamped by the Verifiers and legalised for use.

55. That the Board of Trade be empowered to make regulations from time to time for comparing and verifying with the official Standards, all weights and measures for scientific purposes or otherwise, in which special accuracy is required, and for charging such fees as shall be fixed by them for the comparison and verification of such weights and measures. But no fee shall be charged for the official verification of local Standards.

56. That all instructions, and other regulations authorized by law to be issued and made by the Board of Trade in relation to the verification and inspection of weights and measures, shall be published in the London, Edinburgh, and Dublin Gazettes, and copies shall be laid before Parliament in the Session after the expiration of the year in which they are issued.

57. That the Board of Trade be authorized to require the Verifiers and chief officers of police to make from time to time such returns to the Warden of the Standards in relation to the execution of their duties of verification of inspection of weights, and in such specified form as the Board of Trade shall think fit.

VII.—*Other Provisions.*

58. That it is expedient that a Bill be brought into Parliament by the Government to amend and consolidate the laws relating to weights and measures, and their Standards, and for carrying into effect the preceding recommendations.

59. That provisions be also contained in this Bill for carrying out the recommendations of the Commission in their Second Report, relating to the introduction of the metric system of weights and measures into this country.

60. That all provisions of former Acts which relate to the Standards of weights and measures, and to the legalization, verification, and inspection of weights and measures be repealed, such of the provisions as are not inconsistent with the preceding recommendations being embodied in the amending Bill; and that the powers of verification and inspection of weights and measures granted by such Acts, or by charter, custom, or otherwise, shall cease and determine.

61. That provision be made for granting such compensation to the Founders' Company for the loss sustained by them through abolition of their ancient rights of verifying brass weights, as the Commissioners of Her Majesty's Treasury shall think fit.

62. That tables of all the denominations of legal weights and measures be appended in a schedule to the Bill.

H. W. CHISHOLM,
Warden of the Standards.

Standards Department,
4 May 1869.

PART II.—CONTINUATION OF APPENDIX XII.—FURTHER CONSIDERATION OF THE SUBJECT, WITH REFERENCE TO THE EVIDENCE AND ADDITIONAL INFORMATION LAID BEFORE THE COMMISSION; WITH REVISED SUGGESTIONS AND PROPOSED RESOLUTIONS FOR THE IMPROVEMENT OF THE EXISTING SYSTEM OF INSPECTION OF WEIGHTS AND MEASURES AND GAS METERS.

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tailed commendations of andards mission, tl, as to spection weights d measures.

In further considering the whole subject of the inspection of weights and measures, attention may first be drawn to the recommendations in the Report of the Standards Commission of 1841 bearing upon this question, and to the evidence and information contained in the following papers appended to their Report, viz.:—

Section L.
On the construction and use of local standards.

Section M.
On the state of the laws applicable to the powers and duties of inspectors of weights and measures.

Section N.
On the manufacture and use of tradesmen's weights and measures.

Section O.
Miscellaneous papers, principally relating to the extension of the laws on weights and measures.

Further reference will be made to these papers under the several subjects to which they relate. But the following more important recommendations may be recited:—

Report 1841.

§ 75. Mural standards of length to be securely fixed for public use in all populous towns, the evidence of practical men showing that it would conduce most powerfully to the dissemination of good measures of length. The local authorities to be responsible for keeping these standards in good order, and the local inspectors to report periodically to such local authorities on their condition. These mural standards not to be valid for convictions on charges of false measures.

§ 77. General power of inspectors of weights and measures duly appointed to visit premises to be declared by law.

Complete system of inspection to be established, in some degree similar to those in Prussia and Sardinia, their principal regulations being as follows, viz.:—

Prussian Laws.

(M. 18) 1. A local stamping commission to be appointed in each department, the chief at Berlin, subordinate to the Departmental Government.

2. Offices for testing weights and measures, with proper officers, to be established in every important commercial town, under the inspection of the commissions, with a fixed tariff of charges.

3. The stamping commission at Berlin is specially charged to have ready for sale carfully constructed standards of measure and weight for the purpose of scientific inquiries.

4. In all public offices the functionaries to be bound in the discharge of their duties to use none but duly stamped weights and measures, and must not suffer any unstamped weight or measure in their place of business under a penalty.

Appendix XII.—*continued.*

5. The local police to examine frequently the weights and measures used in trade; to send all that are defective to the nearest stamping office for correction, the expenses falling on the owner. In case of suspicion of fraudulent design, the police to prosecute in the criminal courts.
6. Every police court to have at hand stamped weights and measures, as far as is necessary in the locality, for making proper inquiry into the infractions of the law in ordinary commerce.

(O. 25) 7. All weights and measures subject to inspection to be reverified not only as often as they think that variation may have taken place, but at least once a year in every case, under penalty.

8. Coopers to deliver no new vessel, or old vessel repaired with new staves, in which wine, beer, and similar liquors are sold, without branding upon it the number of quarts and their stamp, which is to be officially furnished to them, and to be returned when the cooper gives up business. Every omission of the mark, or incorrect branding, being punishable with a penalty.
9. All glass bottles made in inland glass houses to be marked with a stamp similarly furnished, expressing the contents in quarts and fractional parts.

With respect to 8 and 9, the Commission hesitated to recommend their adoption in this country, from the objections, first, of the great dissatisfaction which the stamping of casks would excite amongst brewers and others; and, second, of the great depreciation to be caused in the value of the immense stock of wine bottles on hand.

Sardinian Laws.

(M. 25) 1. Verifiers of weights and measures to be appointed in every province.
2. Their special qualifications to be tested before appointment.
3. The local standards for the use of verifiers to be verified by the chief inspector of weights and measures with the standards preserved in the archives, and to be stamped with the mark of a crowned shield with the eagle in the middle, and the date mark.
4. All local standards to be transmitted for reverification every five years.
5. The verifiers to test and stamp weights, measures, and weighing machines with—
   1. The verification mark, being the arms of the province, or its principal town.
   2. The initial letter of the surname of the verifier.
   3. The date mark.
6. On reverification of weights, &c. in subsequent years, only the two last ciphers of the date year to be re-stamped.
7. Verifiers to keep registers of the weights, &c. verified by them, with all requisite particulars.
8. Copies to be sent to the persons interested, and fee charged.
9. No verifier to adjust weights, &c., except for small rectifications, for which they are forbidden to charge any fee.
10. Verifiers forbidden to manufacture weights and measures.
11. Special officers appointed to inspect, after the expiration of a fixed term, tradesmen's weights, &c., with the assistance of the verifier, whenever it is judged convenient. Process to be issued against persons having illegal weights, &c., and penalties on conviction.
12. Table of allowances permitted on weights, &c. to be published.
13. Penalties on officers misconducting themselves.
14. Penalties on forging the legal stamps or marks.

(O. 32) 15. Weights, &c. used in trade to be brought for reverification every six months.
16. Notice to be given to the verifier one month previously of all fixed weighing machines, that he may visit and reverify them.
17. Innkeepers and retail liquor sellers to have their measures reverified annually. Measures of glass earthenware, or porcelain, to be marked originally only; those of pewter and tin re-stamped annually.

(N. 25) 19. No man may exercise the art of maker and adjuster of weights and measures unless he has received from the Chamber of Finances the proper patents of approval.
20. The makers and adjusters thus approved may exercise their art only for that quality of weights and measures, and in that district, as they shall be authorised by their patents.
21–49. Contain regulations for—
   Testing the qualifications of makers and adjusters before granting them patents.
   Their being furnished with the necessary standards, officially verified by the verifier.
   Penalties on makers or adjusters selling or exposing for sale weights and measures not duly tested and stamped by the verifier.
   Penalties on unauthorised persons making or adjusting weights and measures.
   Except measures of capacity for liquids, of glass, earthenware, porcelain, pewter, or tin, the manufacture and sale of which are permitted to every one after being tested and stamped by the verifier.

Report, § 78. That the powers of inspectors of weights and measures be extended and explained, so as to enable them to examine and seize for trial before a magistrate, weights, measures, and weighing machines, which they have good reason for supposing to be unjust, without warrant, wherever they are found; and also to enter, for the purpose of such examination, any place where goods are exposed, or kept, or measured, or weighed for sale or other commercial purpose; and with special warrant of a magistrate, to enter for any such examination into any place whatever.

§ 79. That the system of inspection and registration of weights and measures be organised on a complete and uniform plan throughout the kingdom, with gradations of officers, to whom the general control of the inspection and registration is to be entrusted. To be considered whether these duties might not be efficiently performed by the Excise officers.

§ 80. The existing privileges of inspecting and stamping weights and measures, exercised by certain corporate bodies and local authorities, reserved by sections 42, 44, and 45 of the Act 5 & 6 Will. 4. c. 63, to be wholly abrograted, as being of no advantage to themselves, and as pernicious to the public by the irregularity and insecurity which they produce in the examination of weights and measures.

This recommendation was considered by the Commission to be of high importance. They expressed their conviction that the law could never be efficiently enforced unless privileges of this kind were wholly abrogated. In the condemnation are included—
   Ward inquests in the City of London.
   Unixersities of Oxford and Cambridge.
   Court leets of manors, &c.
   Parish authorities, either from charter, custom, or local Act.
   Courts of burgesses, &c., and generally other than magistrates at quarter sessions.

§ 81. That no weight or measure be stamped as legal except of the same denomination as the official standard.

§ 82. That no unstamped weight or measure be legal, except glass vessels, earthenware vessels, and casks.

§ 83. That every iron weight have only one leaden plug for adjustment, as little larger than the inspector's stamp as may be practically necessary to receive its impression.

§ 84. That every weight be distinctly marked with words or figures denoting the value of the weight which it professes to represent.

§ 86. That any mass or parcel of goods professing to contain a certain weight of such goods, exposed or kept for sale, be subject to the inspector's examination, and to seizure and fine if found unjust. But that the inspector's power do not extend to the opening of such parcel, unless on weighing it with its covering, if any, as prepared for delivery, there shall appear ground for supposing

Appendix XII.—*continued.*

it to contain less than its professed weight of the said goods.

§ 87. That instruments for the purpose of weighing (except weighbridges) be specially included in the powers of the inspectors, as regards examination and seizure as well as fine, if found unjust.

§ 88. That weighbridges be liable to examination by the inspector, and to fine, if found unjust.

§ 89. That where it shall be found impracticable to ascertain the contents of any vessel by the weight of distilled water which it contains, or by pouring water into it from a standard measure, it be permitted to ascertain the contents by gauging (the gallon being assumed to be 277·274 cubic inches), or by pouring seed into it from a standard measure.

§ 90. That all measures of capacity constructed of wood stamped after the passing of this Act (not having been previously stamped), be of a cylindrical form, with a plain and even bottom.

§ 91. That every measure of capacity made of wood or metal be distinctly marked with words or figures denoting the value of the capacity which it professes to represent.

§ 93. That in the examination of measures of length subdivisions of not less than one-eighth of a yard be verified.

§ 94. That chains used in the measure of land, consisting of not more than 30 pieces, be examined and stamped by the inspector; and that no person shall be admitted to give evidence in any court of justice of having measured land, after the passing of this Act, with any other than a stamped measure, or a measure which has been compared, on each day on which any part of the measurement has been made, with a stamped measure, or with one of the mural standards mentioned in § 75.

§ 95. That every false weight, weighing machine, or measure in the possession of a tradesman render him liable to a separate penalty.

Reference has already been made (Appendix XII., p. 381) to the recommendation in § 96, that a distinct table of all the denominations of weights and measures which are recognised by law should be appended to the Act for regulating weights and measures.

With respect to the system of inspection in Prussia, thus referred to by the Standards Commission of 1841, it may be sufficient here to call attention to the new provisions contained in the law of the 13th June 1868, for the regulation of weights and measures in the North German Confederation, as determined by the Federal Parliament. A copy of this law will be found at p. 110 of the Appendix to the Second Report of the Commission. The new provisions applicable to metric weights and measures do not differ materially from the former regulations. It will be seen (section 7) that there is a special provision that no medicinal weight differing from the standard denominations is legal; and that by section 11, that the system of verification and inspection is extended to alcohol meters and thermometers, for which standards are duly provided.

Proposed summary of evidence, &c.

I propose now to submit for the consideration of the Commission a summary of the evidence and information given by the several competent witnesses, so far as they bear upon the details of the several suggestions for improving the system of inspection of weights and measures in this country, and at the same time to consider how far it may be desirable to modify or alter the suggested resolutions which have already been laid before the Commission; concluding with such revised resolutions as appear best calculated to form a comprehensive scheme for establishing and maintaining an improved and efficient system of verification and inspection of weights and measures.

Further suggestions by Mr. Skinner.

The following paper received from Mr. Skinner contains some further suggestions in addition to those given in his evidence:—

Mr. Skinner's proposed Clauses for Act, relating to Inspection.	Remarks by the Warden of the Standards.	Remarks.
As to inspection of weights and measures.		
1. All weights, from 2 drams imperial and 1 gramme metric, upwards, shall have their names marked on them and be legally stamped.	1. There should be a general provision that all weights and measures should have their legal denominations marked upon them, under such regulations as may be from time to time issued by the Board of Trade.	
2. All scale beams 15 inches long and above shall be of good workmanship, *and steeled in all their centres and bearings*, and be legally stamped.		2–6. The following enactments would appear to be sufficient:— That from and after (say 12 months) from the passing of this Act, all balances and weighing machines of every description used in weighing goods for buying, selling, or transport, be duly tested by the verifiers as to their construction and accuracy, and be stamped, in accordance with the authorised official regulations. And all special weights used for lever weighing machines of every description, including steelyards, shall be of legal denominations, and shall be tested and stamped by the verifiers, in accordance with the authorised official regulations. Provision to be made for penalties on persons in trade, and liable to inspection, selling, using, or possessing any weight, measure, or weighing machine contrary to the provisions of the Act.
3. All weighing machines constructed with the beam of equal length from the centre bearing must be of good workmanship and steeled in all their centres and bearings, and legally stamped in compliance with the provisions of this Act.		
4. All weighing apparatus constructed with spring actions must be legally stamped.		
5. Immediately after the passing of this Act, notice to be given to all scale and weighing machine makers that all compouud lever weighing machines, commonly called platform weighing machines, and weighbridges, and all simple lever weighing apparatus of every description and size, commonly called steelyards, that now and hereafter are manufactured or repaired by them, must be constructed and adjusted on one uniform principle of division in tenths, based on the metric kilogram. Any one metric weight of which there is a legal official standard may be chosen for the basis of the detached counterpoise weights to the leverage. The detached weights may be made any shape required, provided always that each has its denomination marked upon it. The weighing machines or steelyards, and the detached weights or balls, must be legally stamped by the authorised officers.		The official regulations should provide for the beams being steeled in all their centres and bearings, and for the rejection of all weighing instruments not offering a sufficient guarantee for solidity and durability. A similar regulation was found necessary in France, and was made by official Circular, dated 22nd May 1855 (*see* Second Report, p. 79), in consequence of numerous complaints of the faulty construction of balances used in trade.
6. All the compound lever weighing machines, simple lever or steelyard weighing apparatus, made previous to this Act, and now in use, may remain unstamped until the imperial weights are abolished. They can then be re-adjusted to the metric system and stamped.		The proposed compulsory provision for large weighing machines and steelyards being made for weighing on the metric system only, appears inadmissible.
7. All persons selling any of the aforesaid scale beams specified, weighing machines, platform weighing machines, steelyards, spring balances, weights, measures of capacity or length, *not having the official stamp on them*, or otherwise not in compliance with this Act, shall on conviction pay a penalty of 20*l.* or more, at the magistrates' discretion.		7–8. Enactments to this effect will necessarily follow the other provisions; but a minimum penalty of 20*l.* appears excessive.
8. All persons who continue to make use of any kind of measures, or weights, scale beams specified, weighing machines, or steelyards whatsoever, not stamped in conformity with this Act, after having received notice to get them stamped from the inspector of weights, &c. for the district, shall be liable to a penalty, and to their seizure and forfeiture at the discretion of the magistrates.		
9. Deviations from the standards of weights and measures, or inaccuracies in scales or weighing machines, may be brought before the court under the heading "With no intent to defraud" to each name; and after the hearing, should any reporter or publisher of any newspaper or other publication, publish any case without the above qualification to each name, he shall be liable to action for defamation of character, and to be sued for damages.		9–10. The suggestion is a good one that the information should distinctly state, either "with fraudulent intent," or "with no intent to defraud." It seems also that in the latter case the publication of the name of a tradesman convicted, without stating the qualification, should be punishable with damages.
10. All persons summoned under the head "With fraudulent intent" shall have the option of having their case tried by jury, by giving notice to the inspector 14 days previous to the trial, which jury shall not be chosen from residents in the same county as the defendant resides in. Defendant may bring any number of witnesses for the defence. If the charge is not proven, no further action can be taken in the case, and all his ex-		There appears no sufficient reason for departing from the present practice of all these cases being tried by the magistrates, with the power of appeal to a higher tribunal.

Appendix XII.—*continued.*

Mr. Skinner's Paper.	Remarks.
penses whatsoever incurred shall be paid by the county rate. If proven, fine or imprisonment, as the court may decide. No appeal.	
11. All existing powers to appoint inspectors or stampers of weights and measures, ale conners, or leet juries, in cities, counties of cities, boroughs, towns, parishes, or manors, shall hereby be abolished, except in the cities of London and Westminster, provided that the inspectors and stampers appointed therein do examine and test and stamp all weighing machines whatsoever mentioned in this Act, in addition to weights and measures, and carry out their duties in strict accordance with the clauses of this Act, and the rules and regulations issued by the Board of Trade.	11. Mr. Skinner states that the object of this suggestion is to limit the powers of inspection to the counties, which he thinks desirable. This object is in accordance with my views, as already expressed, so far as it can well be carried out.
12. As the chief object of this Act is to prevent fraud as much as possible in trading transactions, be it enacted, that all measures of capacity or length, scale beams, weighing apparatus whatsoever, and weights in use in public offices and the Bank of England, and all weighing apparatus and weights used for strictly scientific purposes only, shall be under the supervision of the Board of Trade, and shall not require to be stamped by local inspectors, nor shall they inspect them, if used within their respective districts.	12. This clause is not required. No powers exist for inspectors to visit public offices and the Bank of England, and it is not necessary to declare that persons or places shall *not* be visited. The duties of verifying for scientific purposes are already imposed by law on the Standards Department. The question of the verification and inspection of weights, weighing apparatus, and measures used by Customs and Excise officers, and at Post Offices in dealings with the public, is of more importance, and will be separately considered.
13. On and after the passing of this Act, coal merchants are empowered to use compound lever or simple lever weighing machines (legally stamped) to weigh and deliver coals.	13. If the proposed regulation that all weighing apparatus should be tested and duly stamped is established by law this clause will not be required, as coal merchants, like other tradesmen, will be able to use any such weighing apparatus, whether compound or simple lever machines. It appears desirable that they should be so enabled. Further reference will be made to the subject of weighing and delivering coals in a subsequent part of this Paper.
Rules and Instructions to Inspectors.	
As to instructions to inspectors. 1. No inspector to adjust any weights, scale beams, weighing machines, or measures whatsoever, nor allow any other persons to do so in his office, during office hours or at any other time.	1. This prohibition is too general. The subject is fully considered elsewhere.
2. Every inspector should always bear in mind that his principal duties are to detect *fraudulent trading* with scales, weights, and measures, and therefore he must not expect scientific accuracy in many appliances for weighing and measuring that are used for rough purposes and come under his examination.	2–3. These points would naturally be included in the instructions.
3. Every inspector to visit all places within his district *once in a year at least*, and to make an entry in his office book, recording all slight deficiencies or inaccuracies he may have found not sufficient for a penalty.	
4. Inspectors to have the power to visit every place within their respective districts, where scales weights, weighing machines, steelyards, and measures of capacity or length are used for either buying or selling goods of any description.	4. These powers now exist. They require only to be somewhat more clearly laid down by statute.
5. Inspectors should not take the goods off the shelves, or other places in the shops, that are in bags, packets, or parcels, *supposed* to be weighed up ready for sale. If they wish to ascertain their accuracy, they must become purchasers of them. On discovering any *fraud* in more than one packet or parcel, they may summon the owners of the goods. All slight deviations *not to be noticed*, such as might arise from the drying of the goods.	5. This subject is fully considered elsewhere.
6. All instruments brought to the inspector for testing and stamping should first be examined by him to see that they are in accordance with the regulations. The names of the owners should then be entered in his office book, with the several particulars. The fees should then be paid before testing. If the several instruments are not found sufficiently correct for stamping, the fees must be paid over again when re-tested, and a record kept accordingly.	6. The proposal of charging a fee *every time* a weight, &c. is tested, seems to require further consideration. All these points should be clearly laid down in the official regulations, and one uniform system adopted.
7. Upon an inspector receiving a written notice from a maker or owner that any weighing machine or scale beam, having its corresponding weights, is fixed and ready for examination, he shall attend at any place within his district within three days, Sundays excepted, for the purpose of testing and stamping all such as he shall find correct. One shilling per mile without back carriage, to be charged as his travelling expenses, in addition to the fees.	7. This might be included in the official regulations for verifiers, inserting after "excepted,"—or as soon after as he can appoint.
8. No iron weights that have lead in more than one place should be stamped. No brass weight under 8 ozs. should be mended with plugs of any description, nor soldering at the bottom or surface.	8. The first suggestion which has been already mentioned as recommended by the Standards Commission of 1841, should be adopted. It is now the general practice *not* to re-adjust these small brass weights, it being found more economical to have new ones. It may be sufficient to leave this point to the trade. The verifier should reject all weights badly adjusted.
9. Any scale beams, weighing machines, or measures, broken or damaged during the testing or stamping, to be repaired, and the expense of the same to be paid by the inspector out of the office fees, he making an entry in his book and filing the bill for repairs.	9. There seems to be no sufficient reason for such a regulation. No complaints have been made of damages by inspectors in testing or stamping. If such damage arise by negligence or misconduct the inspector is already liable to a penalty, under s. 29 of 5 & 6 Will. 4. c. 63. He would also be liable to an action for damages under the common law, and provision appears to have been made for such cases under ss. 39 and 40 of 5 & 6 Will. 4. c. 63. By s. 40 no plaintiff can recover after tender of amends. In France, it is considered sufficient that the official instructions caution the verificateurs to be careful not to injure any measure, &c. left for verification and stamping.
10. After the passing of this Act the inspectors to see that all persons selling bread have a legal apparatus to weigh the 2 lb. and 4 lb. loaves, on delivery at all places. And it shall be obligatory on such persons to weigh the bread *if they are required to do so by the purchasers*, under a fine for non-compliance.	10. This suggested regulation is already contained in the Bread Acts. See in a further part of this Paper, under the head of Sale and adulteration of bread.
Fees for Testing and Stamping.	
Scale Beams. For the whole length between the extreme bearings:— Imperial. Per inch, one halfpenny. Metric. Per two centimetres, one farthing.	As to fees for testing and stamping. This scale differs materially from that applicable to weights and measures which is contained in the Schedule to the Act 5 & 6 Will. 4. c. 63. The scale for weighing instruments is of course new. Before determining upon the scale, which should be left to the regulation of the Board of Trade from time to time, careful consideration should be given to its framing.
Weighing Machines constructed with Beams of equal length from their own centres. For the whole length between the extreme bearings in the body or beam part:— Imperial. Per inch, one penny. Metric. Per centimetre, one halfpenny.	
Weights. Imperial. All up to 2 lbs., one halfpenny. All above 2 lbs., one penny each.	

Appendix XII.—*continued.*

MR. SKINNER'S PAPER.

Metric.

All up to 1 kilog., one half-penny.

All above 1 kilog., one penny each.

Compound Lever, Simple Lever, and Spring Action Weighing Machines of all kinds.

	Imperial.	Metric.	s.	d.
All that weigh up to	56 lbs. or	25 kilog.	0	3
	112 „	50 „	0	6
	3 cwt. or	150 „	1	6
	10 „	500 „	2	6
	20 „	1000 „	3	6
All above that weight		-	5	0

each.

Measures of Capacity, Liquid or Dry.

Imperial.

All up to 8 quarts, one half-penny.

All above 8 quarts, one penny.

Metric.

To 1 dekametre, one half-penny.

All above 1 dekametre, one penny.

Measures of Length.

The wood yard, one penny.

Wood metre, one penny.

FURTHER SUGGESTIONS.

1. London and Birmingham being the centres for the manufacture of weighing apparatus, 75 per cent. of the whole quantity being made there, it would be desirable to make arrangements with a qualified resident scale maker in Birmingham, Surrey, and Middlesex, to examine and stamp scale beams, weighing machines, platform weighing machines, weighbridges, and steelyards, as there would be a great quantity to be done during the first year or so. The other inspectors could do the work in the outlying counties, and could also attend at the metropolitan offices and receive instructions from the scale makers, illustrated practically for those that required it.

Rotch, 351.

Stock, 231.

Baker, 445.

Wilmot, 592.

Whitfield, 509–512.

REMARKS.

1. The employment of scale makers for verifying their own work is objectionable. The work of verification and stamping weighing instruments should be done by the verifiers and their assistants. A verifier ought to be properly qualified to execute these duties, under proper regulations and official instructions, and upon an extraordinary pressure of work he should engage extra assistance.

The point is not a new one. The system of testing and stamping weights and measures was begun in 1834, under the Act 4 & 5 Will. 4. c. 49., which was superseded in the following year by 5 & 6 Will. 4. c. 63., evidence being heard by a Select Committee on the working of the Act of 1834.

It appears that the Middlesex magistrates had great objections to appoint any scale maker to inspect weights and measures, there being one a candidate as inspector, and considered them to be very improper persons to act as inspectors, on the grounds, 1, that they would have to test their own work, which they always made erroneous, so as to allow for wear and tear; 2, that a scale maker, who was an inspector, would have an advantage over others of his own trade. It was subsequently shown that the inspectors in Middlesex were able to do all their work without difficulty, although with great labour and fatigue.

In Birmingham, on the contrary, the scale and weight makers, seven in number, offered to do all the work without putting the county to any expense. The magistrates accepted the offer and appointed them all inspectors. These inspectors provided the standards and apparatus, and both stamped and adjusted the weights and measures, charging fees according to a scale for each operation.

The Committee of 1835 made no special report, but their decision upon this question was practically given by the insertion of s. 23 of the Act, prohibiting any maker or seller of weights and measures from being appointed an inspector.

MR. SKINNER'S PAPER.

2. The Channel Islands never having adopted imperial weights and measures, tradesmen are compelled, much to their inconvenience, to use the old Norman 17½ oz. and the old wine measure for the sale of their goods, and their difficulties can easily be seen when they buy in the English markets, and retail as above. It is recommended that the Channel Islands be specially named in any future legislation on the subject.

REMARKS.

2. Mr. Skinner says that this statement is founded on his actual experience. But this is a matter for the local legislature, and not for the imperial legislature to decide. The existing Jersey standards, including the Jersey pound avoirdupois, containing 16 oz., and = 7561 imperial grains, being the ancient standard Marc du Rouen, are stated to have been legalised by Acts of the Royal Court of Jersey in 1593, 1617, and 1625, having been confirmed by the Sovereign in Council in 1717 (*see* Appendix III., p. 79).

A specimen of this standard weight, with the smaller weights in a cup form, has been presented to the Standards Department by Colonel le Couteur, Viscomte of Jersey.

With his paper Mr. Skinner sent several models for proposed new patterns of metric weights. These models have already been exhibited to the Commission, and other forms of metric weights have been determined upon by them. With respect to the mode of construction of such weights, the following observations of Mr. Mellor may deserve attention:—

Whatever shape the proposed metric weights may be for trade purposes, it should always be borne in mind that ample provision should be made for their future convenient adjustment, as they become light and deficient by wear and tear.

To this end, thickness of the metal, whether of iron or brass, or other metal, is the essential point, especially in the smaller or flat weights, say of 2 lbs. downwards.

The only way in which weights can be properly adjusted when light (particularly iron weights), is by drilling the weight and filling up the vacant space with lead, which of course has a greater specific gravity. Now, unless the hole thus drilled in the weight is sufficiently deep, the lead will not hold, for obvious reasons, but will soon drop out, and for this reason thin weights are objectionable.

Under these circumstances I would suggest how far it may be desirable to obtain from other makers (not mere sellers) of weights, such as Messrs. Avery's, of Birmingham, &c., patterns for the purpose in view, that is to say, if I am right in the premises.

To illustrate the thin and the thick iron weights, if you were to ask some of your city scale makers to let you see a set of each of 4 lbs. down to an ounce of the "Crane foundry's, Wolverhampton," make, for the thin, and "Avery's, Birmingham," for the thick, you would perhaps more fully comprehend my meaning.

R. MELLOR.

Manchester, 25th October 1869.

Mr. rema form metr weig

Before entering in detail upon the evidence bearing upon the several points for consideration, some notice may be taken and observations made upon a proposed scheme of inspection involving material alterations in the existing system, which has been submitted to the Commission by Mr. Martyn Roberts, and is referred to in his evidence.

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Mr. Roberts considers that the "Government is in no "manner bound to keep a tradesman's sets aright, but "only to give him every facility for testing them with the "legal standard, and Government should also give the "consumer a ready means of ascertaining whether the "quantity of goods sold him is a true quantity," and that if a tradesman uses false weights and measures he should be punished.

It may be convenient to specify one by one and remark upon the principal recommendations for accomplishing the ends Mr. Roberts has in view.

MR. M. ROBERTS'S PLAN.

1. As to the material for standard and commercial weights generally, he proposes a non-oxidisable substance, such as glass, subjected for many days to a high heat. He thinks this suggestion worthy of trial.

REMARKS.

1. Professor Miller at once stated his opinion that the suggestion is worth consideration, and that some experiments should be made with the view of ascertaining whether glass may be conveniently used for weights. The actual weight would probably remain nearly constant for a long period, if the glass were kept clean, and would be only slightly and temporarily affected by moisture being condensed and remaining upon its surface. The principal points to be ascer-

Appendix XII.—*continued.*

Mr. M. Roberts's Plan.	Remarks.
	tained are, 1, the mode of manufacturing the glass so as to bring it to the fittest state for weights; 2, the cost at which glass weights could be sold after adjustment, verification, and stamping or marking; 3, the most convenient mode of adjustment, and of stamping or marking. These are practical questions, and arrangements have been made under the sanction of the Commission, for the necessary experiments being made by Mr. Oertling and Messrs. Chance, of Birmingham.
	This suggestion is distinct from Mr. Roberts's new plan of inspection, and if recommended to be carried out, it might be dealt with in the official instructions of the Board of Trade.
2. Numerous subsidiary sets of standards to be deposited at the police station of every petty sessional division throughout the kingdom, and also at police stations in such villages as may be distant from any petty sessional court.	2. A compulsory provision to this effect would be inexpedient. The experiment has been tried in Ireland, and has not been satisfactory. The sub-standards used there, and made of iron, as authorised by the Irish Weights and Measures Act, are really no standards at all. The principal objection to the suggestion is the expense of so many standards really fit for the purpose. Glass standard weights might perhaps be furnished at less cost than brass or gun metal, although that is doubtful; but standards of capacity and length could not well be made of glass. Another objection is, that the difficulty and cost of duly maintaining the accuracy of standards is in porportion to their number. It is now by law left to the local authorities, who have to provide for the expense, to determine the number of standards required. One object of an official supervision should be to see that a proper number is provided in the several localities.
3. To discontinue the reverification of local standards at the Standards Office, thus saving the delay and expense of sending them to London, and to appoint two or three official *general inspectors*, who should attend once a year at least at the county town with a set of official standards, in order to verify and direct the adjustment of all the local standards to be brought to him for that purpose.	3. Two or three official *general inspectors* would be quite unequal to the work suggested here and in suggestion 7. The result of carrying out this proposal would be to shift the expense of reverifying the standards from the counties to the Government. And how are all the local standards throughout the kingdom to be locally adjusted? As a general rule, the standards can be properly adjusted only in London, by the skilled and experienced mechanics employed by the metropolitan firms, and the reverification and restamping should take place at the Standards Office only, where due means and appliances are provided.
	It has been already shown in the official correspondence with Mr. Roberts (*see* Appendix VI., p. 273), that the average expense of adjusting and reverifying in London a full set of county standards is now only 1*l.* 4*s.* per annum, and if arrangements were generally made, as by Mr. Mellor, to have a sufficient number of sets of standards, and send a set to London from time to time, when required, for adjustment and reverification, no unnecessary or inconvenient delay need occur.
	This charge of 1*l.* 4*s.* per annum is exclusive of the adjustment of balances, and is calculated upon the assumption that the standard weights are adjusted and reverified once in five years, and the measures once in 10 years. One of the principal metropolitan weights and scale makers has since informed me that he contracts with the county of Surrey to adjust and get officially reverified all the county standard weights every three years, and measures every six years, and to put in order their scales and balances whenever required. The expense is 17*l.* 10*s.* per annum; the county has six full sets of standard weights and measures (no troy weights) and four or five short sets. The expense of transport to and from London is about 5*s.* a set.
4. To discontinue the existing system of verifying and stamping weights and measures, and to give to tradesmen facilities for themselves to test them with the legal standards, a trifling fee being payable to the police for each testing; also to afford to buyers of goods the liberty of comparing the weight of the article brought with the standard.	4. By this plan just the same work of verification would have to be done as at present, with this difference, that it would be done very badly, if at all, by ignorant persons, instead of being properly done by experienced and responsible officers. The security now afforded by the official stamp to the tradesmen and to the public would be lost.
5. That every tradesman should register himself on the police books, stating the number and kind of weights and measures he intends to use.	5. This is in fact the system adopted in France, and carried out by the verificateurs. A better plan has already been submitted to the consideration of the Commission, through the evidence of Mr. Mellor and the communication from the inspector of weights and measures at Bath, who themselves register the weights, measures, and balances used by tradesmen and inspected from time to time. This point might be dealt with in the official instructions.
6. That a vigilant inspection of weights, measures, and balances should be exercised by the police, who should visit the premises of every registered person at least once in every three months, at uncertain intervals.	6. This is really the very system of inspection now proposed to be generally adopted, except that the period of inspection should be left to the inspector, and should vary as occasion may require. To compel all tradesmen using weights and measures to register themselves and their weights and measures in the police books, and to subject them to such frequent visits of the police, would give the notion of placing every tradesman as a suspected person under the surveillance of the police, and would not be tolerated in this country.
7. That the official *general inspector* should visit the several police districts, see that the register is carefully kept, and as far as possible maintain the whole system in perfect order.	7. A due supervision and control over the local officers of weights and measures, to afford some satisfactory assurance that their duties are properly discharged, is much needed. It is hoped that this end may be obtained, by the issue of authoritative official instructions, and the appointment of official supervisors to see they are duly carried out.

Classification of subject of inspection.

The whole subject of the local inspection of weights and measures, including that of gas meters, will now be considered under the following heads, and reference be made to the evidence bearing upon each head:—

1. Separation of duties of verification and of inspection of weights and measures, and appointment of distinct officers for discharging these duties.
2. Employment of police officers in the verification and inspection of weights and measures.
3. Duties of inspection, as distinct from verification.
4. Appointment of and authority over verifiers.
5. Establishing regulations for test examination of qualifications of verifiers.
6. Adjustment of weights and measures by verifiers or inspectors.
7. Remuneration of verifiers and inspectors by salary only, and not by fees or half of penalties.
8. Issue of official instructions to verifiers and inspectors for the better and more uniform discharge of their duties.
9. Appointment of official inspectors of standards for supervision of local officers.

Appendix XII.—*continued.*

10. Periodical reverification of local standards.
11. Scale of allowance for error in official comparisons of standards.
12. Question of allowance of error in commercial weights, measures, and balances.
13. Regulations for construction of weights, measures, and balances.
14. Weights, measures, and balances to be stamped with the mark of the maker; and all makers to be duly registered.
15. Original verification and periodical reverification of weights and measures.
16. Verification and stamping of balances and weighing machines.
17. Official stamps of verification.
18. Legality of adjusting balls far balances.
19. Draught in tradesmen's scales.
20. Inspecting parcels of goods made up of specified weight.
21. Punishment of frauds in weighing or measuring goods for sale, &c.
22. Inspection of weights, &c. used by Post Office, Customs, and Excise Departments.
23. Information contained in annual reports of the inspector at Manchester.
24. Other duties connected with or analogous to the inspection of weights and measures performed by the inspectors.
25. Public or mural standards of measures of length.
26. Operation of and proposed amendments in Sale of Gas Act.

1. Separation of duties of Verification and Inspection.

1. *Separation of the duties of Verification and Inspection of Weights and Measures, and appointment of distinct Officers for discharging these several duties.*

Mr. Skinner, weight and measure maker in Southwark, considers this a bad plan, and that one officer who thoroughly understands the duties, and has no other occupation, not
Q. 663. being a policeman, should do all the business. His evidence tends to show that the inspection requires as much technical skill as the verification.

Q. 836. Mr. Fowler, another weight and scale maker in the metropolis, thinks, on the contrary, that it would be a vast improvement upon the present system; that it would be new in this country, but that the French system is far preferable to ours.

Q. 1269. Mr. Ledger, inspector in the city of London, where the duties are now performed by separate officers, thinks the separation very desirable.

Q. 1471. Mr. Morrison, inspector in the county of Middlesex, thinks that one officer can execute all the duties; that there is not enough to do if he has no other occupation but the verification and stamping; that his is a considerable district, and he does all that he has to do in the time allotted.

Q. 2062. Mr. Strugnell, inspector of Surrey, and also in the Metropolitan district, and formerly in the county of Lincoln, as a police officer, considers that the separation of the duties in each district would be inexpedient; that the only beneficial thing would be to allow the stamping to be done by one man for the whole county, without making any distinction in the districts. But he calls attention to one very objectionable thing in the existing practice of the performance of both duties by one officer; that when engaged in stamping at a fixed place, and on fixed days and hours, the inspection of the district must be practically suspended during these periods, and any person choosing to act dishonestly can do so without any hindrance whatever.

Q. 2365. Mr. Mellor, the experienced inspector at Manchester, approves so much of the separation of the duties, that it has been practically established in his district of inspection.

Q. 2586. Captain Harris, now Assistant Commissioner of Metropolitan Police, and for many years chief constable of Hants, where he was charged with the inspection of weights and
Q. 2600. measures, disapproves of the separation of the duties in the counties, and thinks it would be only an additional expense; but he sees no difficulty in separating the duties in the Metropolitan district.

Q. 2877. Mr. Cresy, an officer of the Metropolitan Board of Works sees no difficulty in the separation of the duties of the detection and seizure of false weights and measures from the testing, and entrusting them to the police.

Mr. Pownall, magistrate of Middlesex, has no decided Q. 2955.
opinion upon the point, but sees some advantage in both duties being exercised by the same officer, that in bringing cases before the magistrates he might also give information Q. 3140.
as to the periods when the defendant's weights and measures were verified, so as to show his *bonâ fides*.

As to Ireland, Mr. Harvey, inspector at Belfast, thinks it would be very expedient to separate the duties, and has no doubt that the verification requires more technical skill than the constabularly officers generally possess. He would Q. 3141.
prefer leaving it to the Board of Trade, or some competent authority, to have the whole control in regard to that matter.

Mr. Skinner's opinion that the inspection requires as much technical skill as the verification appears to me to be not well founded. The verifier has to test weights and measures, and should test balances, to ascertain that they are both properly constructed and duly accurate. The inspector has only to satisfy himself that they are not grossly incorrect or defective, or fraudulent to the detriment of the public. There is thus a manifest distinction between the duties of a verifier and those of an inspector. Official instructions may be drawn up for the guidance of an inspector of ordinary intelligence, which, with a very little practice, would enable him to discharge the duties of inspection efficiently. But although similar instructions may be furnished to the verifier, there must continually remain various details requiring more technical skill to deal with them, and such as a specially qualified person ought to possess.

It may appear to be a more important objection that a verifier will not have enough to do, and that his appointment as a separate officer would be only an additional expense. But this objection loses all its force if a scheme is to be carried out so that each district of verification will be enlarged in order that the duties shall occupy the whole time of a verifier, and by which a system of periodical verification of all commercial weights and measures, as well as of balances, may be established, such as is now in practice at Manchester and Bath, as well as in France,—one far more efficient and extensive than is now generally enforced in this country.

It should also be borne in mind that it is proposed to entrust to verifiers the duties of verifying gas meters. And it is to be anticipated that large additional duties will be thrown upon the verifiers in relation to weights and measures corresponding with the new standards of weight, capacity, and length, as well as metric weights and measures, and in some cases in the adjustment of weights, measures, and balances, as at Manchester.

As to this point, therefore, mainly upon the ground of the special qualifications required for the verifiers, I adhere to the suggestions already laid before the Commission, for the separation of the duties of verification and inspection. It has been already shown that such separation is now in force in France, Germany, and Italy, and has been recommended by the Standards Commission of 1841.

2. Employment of police in weights and measures duties.

2. *Employment of Police Officers in the Verification and Inspection of Weights and Measures.*

Mr. Skinner's objections to the employment of police officers in these duties are twofold; first, that it would be a great disadvantage that one policeman would not be kept continually to the duties; he would be liable to be changed to some other place, and another officer put in his place who would not understand the duties; the consequence would be a continual repetition of teaching them how to do their business. Secondly, that even if a special policeman Q. 663.
were appointed, the employment of the police would create Q. 664.
a mob round each door, and the remarks made and the conclusions formed by the ignorant would be very unfavourable to the shopkeeper and hurtful to his feelings. He thinks the whole subject strictly commercial, and it is better not to incorporate any police influences into it.

Mr. Fowler takes an entirely opposite view. He thinks Q. 812.
that an immense benefit has accrued from the inspection of weights and measures being transferred to the constabulary; they carry with them a moral power, and they are generally well looked after and well-conducted men; that even for verifying all commercial weights and measures Q. 837.
they are the best materials you can deal with, and he does not see how you can get officers so well qualified from any other class of the community.

Appendix XII.—*continued.*

Q. 1467. Mr. Morrison thinks that they are not suitable for the duty, but he gives no reason for his opinion.

Q. 1683. Mr. Short, of the firm of De Grave and Co., who, like Mr. Fowler, has had very much to do with inspectors in business transactions, sees no objection to the employment of the police as inspectors of weights and measures, but

Q. 1684. that they are generally obnoxious to tradesmen. He says he has found them generally very intelligent men, and men of education, and therefore he thinks them very suitable for making good inspectors of weights and measures.

Q. 2043. Mr. Strugnell, the Surrey inspector, formerly in the police, naturally is of opinion that they are peculiarly qualified for inspecting weights and measures, and would carry out the duties efficiently if they had no police duties

Q. 2037. to perform. He thinks it not a very good plan to mix up the duties, and that if an officer could be appointed to carry out the Weights and Measures Act only, the duties would

Q. 2044. be better carried out; that the several inspectors should execute the duties under the general supervision of the chief constable of each county, being liable to perform police duties only on extraordinary occasions. He found

Q. 2050. Q. 2053. it at times very difficult to attend to his ordinary police duty and to the inspection of weights and measures.

Q. 2361. Q. 2703. Mr. Mellor thinks that, as a rule, police officers are very unfit for these duties. He further states that he does not consider police officers more fitted for the duty than other persons, and quotes an instance of the misconduct of an inspector of police in the execution of his weights' and measures' duties, and his being consequently fined by the magistrate.

Q. 2564. Q. 2567. Capt. Harris's evidence is important from his long experience. He thinks that the employment of the police for these duties has been highly advantageous. In Hampshire the police officers, with stations, and horses and carts

Q. 2573. already provided, became available for the duties without any additional expense. The superintendents of each division were selected for the inspection, and received warrants from the magistrates under which they acted. He does not see the slightest difficulty in employing the police in the inspection of weights and measures throughout the country, including London and all the large cities.

Q. 2581. He thinks that all boroughs under a certain population should be united with the counties for this purpose. He

Q. 2600. says it can scarcely be doubted that uniformity of action throughout the country with respect to the mode of inspection is most desirable, and he does not see the slightest

Q. 2621. Q. 2630. Q. 2641. difficulty in effecting it. He thinks that a small additional salary, beyond the police pay, should be given them. He is strongly in favour of placing the whole inspection of the country in the hands of the police, and can see no administrative difficulties in the relation of the police to the Home Office, and the inspection of weights and measures to the Board of Trade.

Q. 2731. Mr. Martyn Roberts recommends that there should be no inspection of weights and measures whatever, except through the police.

Q. 2877. Mr. Cresy sees no difficulty in the police carrying out the duties of the detection of fraud, and the detection and seizure of false weights and measures.

Q. 2947. Mr. Pownall's opinion is very strong against the employment of the police in the inspection of weights and measures, although his objections apply solely to their employment for this purpose in the metropolis, where the justices have no control over them, whereas in other parts of Great Britain they are under the authority of the magistrates. His most serious reason against employing the police for these duties in the metropolis is, that the greater number of cases is against publicans for defective pots, and he considers it most unadvisable that the police should interfere with public houses more than is absolutely necessary.

Q. 2948. His feeling is against the police interfering in commercial matters, and that they should be kept for what may strictly

Q. 2949. be called police duties. He thinks they would be useless for the purposes of inspection unless out of uniform, and he feels very great repugnance to the police executing their duties in plain clothes, except when the ends of justice absolutely require it. He states that there is now the greatest confidence felt by the public in the accuracy of the present metropolitan inspectors, and believes that no such confidence would be felt if the inspection were exercised by the police, and that persons complained against would always be requiring their weights and measures to be re-tested, they would not be satisfied as they now are. He thinks that his brother magistrates concur in these opinions.

Q. 3015. Sir T. Tilson sees no objection to the inspection in the metropolitan district being in the hands of the police, yet he is quite satisfied with the existing inspectors. As a

Q. 3028. general rule, he thinks that if the police were so employed, the principle of honour and duty would be stronger amongst them than amongst persons appointed from the

Q. 3057. civil ranks. He considers the employment of the police in the inspection of weights and measures generally throughout the country a necessary practice at present, as sufficient remuneration could not be given to any one if he were not connected with some public body belonging to the county. This arises from the very wide districts and very small number of convictions. He believes that the present practice works well, so far as he is able to give an opinion.

Q. 3067. With respect to Ireland, Mr. Harvey says that the transfer to the constabulary of the duties relating to the inspec-

Q. 3069. tion of weights and measures has worked well. He has heard the magistrates and others express their approval of the way in which the inspectors discharge their duties.

Q. 3128. But he considers that it would be better to pay the men for the extra duties they have to perform than to give no remuneration for them.

It will be seen that there is some difference of opinion as to the expediency of employing the police in these duties connected with the weights and measures used for trade purposes, although the practice of so employing them has now become very general. Mr. Mellor's objections apply rather to their exercising the present duties of inspection, including, as he understands them, not only the verification, but the adjustment of weights and measures. In some previous remarks made by Mr. Mellor upon Sir J. Duckworth's Bill of 1850, for amending the law relating to weights and measures, he says, "I think "it would be exceedingly unwise to entrust an ordinary "police constable with the important office of inspector of "weights and measures. In some parts of the country "the magistrates have recently given the office to the "superintendents of police, who are men of education, "and possess general information, and of course to them "the same reasons may not apply. In the other cases I lay "very great stress indeed upon my objection, and such, I "am persuaded, would be the general feeling of shop-"keepers, &c." The other objections are applicable principally to the employment of the metropolitan police as inspectors of weights and measures.

From the following table may be seen the extent to which the county police in Great Britain are now employed in the duties of inspection of weights and measures, as well as other information connected with those duties; the information is taken from the abstracts of the returns made to the Commission, contained in Appendix IV., corrected in some instances from a very full and detailed return of the number of convictions, of inspectors of weights and measures, &c., presented to Parliament last session, No. 170 of 1869. Copies of this return have been circulated to the members of the Commission.

Statement showing in each county of Great Britain, for the year 1866, according to returns from the inspectors, corrected by the Parliamentary Return, No. 170 of 1869,—

1. Number of county inspectors of weights and measures.
2. Number of other inspectors of weights and measures.
3. Total number of inspectors in each county.
4. Amount of salaries of county inspectors.
5. Amount of salaries of other inspectors.
6. Total salaries of inspectors.
7. Number of weights and measures verified in 1866.
8. Number of convictions in 1866.
9. Number of convictions in quarter ending 24th June 1868, as per Commons' Paper, No. 170 of 1869.

Appendix XII.—*continued.*

Counties.	Number of Inspectors.			Amount of Salaries.			Total Number of Weights and Measures verified in 1866.	Total Number of Convictions.	
	County.	Other.	Total.	County.	Other.	Total.		In 1866.	In Quarter to 24th June 1868, 170/1869.
ENGLAND.				£	£	£			
Bedford	4	1	5	40	20	60	13,833	22	17
Berks	8	5	13	70	50	120	9,836	11	2
Bucks	6	2	8	—	5	5	10,766	41	14
Cambridge	4	2	6	—	67	67	15,253	7	49
Cheshire	10	4	14	—	170	170	71,469	87	25
Cornwall	6	10	16	—	27	27	40,328	76	2
Cumberland	6	3	9	—	40	40	17,067	103	—
Derby	12	—	12	25	—	25	4,036	100	19
Devon	12	14	26	97	—	97	27,681	126	48
Dorset	9	3	12	—	10	10	11,703	34	5
Durham	11	4	15	—	259	259	33,162	73	2
Essex — In Metropolitan District.	1	—	1	—	—	—	59,020	33	—
Essex — Out of do.	14	5	19	—	62	62			13
Gloucestershire	8	2	10	—	15	15	16,941	23	1
Hants	14	3	17	—	145	145	1,203	22	7
Herefordshire	9	2	11	—	73	73	9,787	—	2
Herts	—	3	3	—	—	—	2,606	19	10
Hunts	5	—	5						
Kent — In Metropolitan District.	4	—	4	240	—	240	36,918	235	55
Kent — Out of do.	14	17	31	93	124	217			68
Lancashire	18	18	36	630	1,172	1,802	319,032	572	203
Leicestershire	8	1	9	—	70	70	9,949	57	15
Lincolnshire	14	6	20	160	74	234	56,145	78	13
Middlesex	4	5	9	600	420	1,020	282,481	1,199	128
Monmouthshire	1	2	3	75	15	90	7,757	2	—
Norfolk	16	6	22	—	160	160	21,380	77	24
Northampton	7	4	11	—	10	10	25,589	186	5
Northumberland	6	3	9	70	110	180	34,331	30	—
Nottingham	6	3	9	—	157	157	40,163	42	11
Oxfordshire	10	3	13	—	40	40	31,910	50	19
Rutland	1	—	1	—	—	—	1,320	9	—
Salop	2	5	7	149	34	183	23,025	223	4
Somersetshire	15	11	26	225	366	591	67,792	94	27
Staffordshire	3	6	9	360	68	428	54,670	273	212
Suffolk	10	6	16	35	63	98	27,338	21	5
Surrey — In Metropolitan District.	4	—	4	900	—	900	74,051	1,051	194
Surrey — Out of do.	7	2	9	—	15	15			5
Sussex	11	6	17	157	153	310	32,066	31	—
Warwick	5	8	13	—	360	360	81,485	90	62
Westmorland	2	—	2	—	—	—	4,808	—	—
Wilts	9	2	11	—	15	15	3,096	7	—
Worcestershire	10	4	14	—	30	30	23,626	104	22
Yorkshire: East Riding	12	14	63	196	470	787	99,726	199	145
Yorkshire: North Riding	16			—					
Yorkshire: West Riding	21			121					
Total	375	195	570	4,073	5,049	9,122	1,711,949	5,409	1,427
WALES.									
Anglesea	2	—	2	—	—	—	11,540	—	—
Brecon	2	1	3	—	5	5	389	31	—
Caermarthen	3	2	5	100	3	103	168	1	6
Cardigan	5	1	6	—	1	1	1,285	2	—
Caernarvon	1	—	1	—	—	—	12,369	—	—
Denbigh	2	—	2	—	—	—	8,615	45	—
Flint	3	—	3	22	—	22	7,867	37	23
Glamorgan	4	1	5	—	38	38	14,587	—	1
Merioneth	1	—	1	—	—	—	2,396	—	—
Montgomery	1	—	1	32	—	32	2,291	47	23
Pembroke	6	2	8	5	6	11	491	—	1
Radnor	2	—	2	—	—	—	—	—	—
Total	32	7	39	159	53	212	61,998	163	54

Appendix XII.—*continued.*

Counties.	Number of Inspectors.			Amount of Salaries.			Total Number of Weights and Measures verified in 1866.	Total Number of Convictions.	
	County.	Other.	Total.	County.	Other.	Total.		In 1866.	In Quarter to 24th June 1868, 170/1869.
SCOTLAND.									
Aberdeen	3	1	4	30	30	60	16,286	6	—
Argyll	2	—	2	5	—	5	605	2	—
Ayr	5	3	8	—	11	11	16,483	58	—
Banff	1	—	1	2	—	2	354	—	—
Berwick	1	1	2	40	—	40	684	—	—
Bute	1	1	2	15	12	27	881	—	—
Caithness	1	—	1	—	—	—	—	2	—
Clackmannan	1	—	1	—	—	—	—	—	—
Cromarty	1	—	1	15	—	15	469	—	—
Dumbarton	1	1	2	15	2	17	6,016	—	—
Dumfries	2	1	3	5	10	15	7,727	—	—
Edinburgh	2	3	5	295	—	295	67,079	275	194
Elgin	1	1	2	5	—	5	1,076	—	—
Fife	1	6	7	50	5	55	7,492	5	5
Forfar	1	5	6	—	45	45	11,374	—	—
Haddington	3	2	5	—	—	—	420	—	—
Inverness	3	1	4	—	20	20	—	—	10
Kincardine	1	—	1	10	—	10	804	—	—
Kinross	1	—	1	—	—	—	—	—	—
Kirkcudbright	1	1	2	—	—	—	5,609	—	—
Lanark	6	5	11	—	48	48	97,004	126	26
Linlithgow	1	—	1	—	—	—	—	—	—
Nairn	—	1	1	—	—	—	—	—	—
Orkney	1	—	1	10	—	10	1,522	—	—
Peebles	1	1	2	—	—	—	275	—	—
Perth	1	1	2	54	—	54	20,514	—	5
Renfrew	2	2	4	7	—	7	11,522	10	7
Ross	7	1	8	—	—	—	6,941	—	—
Roxburgh	1	—	1	61	—	61	3,288	38	20
Selkirk	1	—	1	5	—	5	567	—	—
Stirling	1	2	3	15	3	18	2,622	—	—
Sutherland	1	—	1	—	—	—	—	—	—
Wigtown	2	1	3	—	—	—	154	—	—
Zetland	1	—	1	13	—	13	—	—	—
Total	59	41	100	652	186	838	287,768	522	267

SUMMARY.

	Number of Counties.	Number of Inspectors.			Amount of Salaries of Inspectors.			Total Number of Weights and Measures verified in 1866.	Total Number of Convictions.	
		County.	Other.	Total.	County.	Other.	Total.		In 1866.	In Quarter to 24th June 1868.
					£	£	£			
England	41	375	195	570	4,073	5,049	9,122	1,711,949	5,409	1,427
Wales	12	32	7	39	159	53	212	61,998	163	54
Scotland	34	59	41	100	652	186	838	287,768	522	267
Total in Great Britain	87	466	243	709	4,884	5,288	10,172	2,061,715	6,094	1,748

Of the 52 counties in England and Wales, the county police are now exclusively employed as inspectors of weights and measures in 42 counties. The 10 counties in which they are not so employed are the following:—

Essex, Kent, Middlesex, Surrey:—
Being partly in the metropolitan district where the police are not under the authority of the magistrates. In Essex all the inspectors belong to the police, except one in the metropolitan district. And in Surrey the seven inspectors out of the metropolitan district are all officers of police.

Monmouth:—
Where the county inspector is the crier of the court of quarter sessions. But the other inspector of weights and measures in the county, for the borough of Newport, is the chief superintendent of police.

Northumberland:—
In 1866, one only of the six county inspectors was an officer of police, without salary. Four others were keepers of prisons, having a salary of 15*l.* a year each, the sixth was a private hotel keeper, at 10*l.* a year. In 1868, a second officer of police was appointed to succeed one of the prison keepers.

Salop, Staffordshire:—
In these two counties the county police are not employed as inspectors of weights and measures, and the inspectors have their fixed salaries.

Sussex:—
In West Sussex the six inspectors are superintendents of police, and unpaid. In East Sussex the five inspectors are paid 15*s.* a day each when actually employed. The amount so paid in 1867 was 378*l.*

Appendix XII.—*continued.*

Caermarthen:—

The county police not employed.

Out of the 406 county inspectors of weights and measures in England and Wales there are thus 351 who are officers of police, and only 45 are selected from other classes.

Of the 57 county inspectors of weights and measures in the 34 counties of Scotland, 45 employed in 23 counties are police officers, the exceptions being as follows:—

Berwick—where the inspector is a surveyor.			
Bute	„	„	joiner.
Cromarty	„	„	grocer.
Elgin	„	„	clergyman.
Fife	„	„	jeweller.
Kincardine	„	„	gunmaker.
Kinross	„	„	sheriff's officer.
Orkney	„	„	gaoler.
Renfrew	„	„	not stated.
Selkirk	„	„	„
Stirling	„	„	smith and beam maker.

With respect to the small number and even absence of convictions in several counties which appear in the preceding statement, it is only just to call attention to the following remark made in the return from the city and borough of Bath, where nine convictions are stated to have occurred in the quarter to Midsummer 1868, and where the inspector is known to be an intelligent and vigilant officer:—

No. 170 of 1869, p. 133.

"The small number of persons summoned is doubtless due to the system established here of endeavouring rather to prevent fraud than to punish it. All persons using weights and measures are required to have the same examined at least twice a year at the office of the inspector, and if they comply with this condition the inspector does not when making his periodical visits summon them if their weights, &c. merely indicate defects consequent upon wear and tear. The public are thus protected, whilst the honest tradesman is not vexed by being summoned for that which is a natural consequence of metallic friction and the usual wear and tear."

It should also be added that in some instances, such as in the county of Hants, the county standards may have been under the process of adjustment and reverification in London, and the action of the inspectors thus suspended in a single quarter of the year. It is now a common practice to send all the county standards at once up to London to be re-adjusted and reverified. This is a bad plan, as it stops the inspection throughout the county. The official instructions to be issued to inspectors should point out the propriety of sending the several county sets at different periods, and with one extra set, there will be no occasion for any suspension of the functions of inspectors.

The expediency of employing the police in duties connected with weights and measures will be considered under the separate heads of inspection and verification.

3. Duties of inspection, as distinct from verification.

3. *Duties of Inspection, as distinct from Verification.*

The duties of inspection, as distinct from those of verification, may first be considered.

Upon the whole it appears to me that the evidence and information since laid before the Commission strongly bear out the suggestions already made under this head, and tend to show that they should be adopted, and that, as a general system to be recognised by law, the county police should be employed in the duties of inspection of weights and measures. But there are also special points which appear to deserve consideration.

The obvious expediency of withdrawing all control over the inspection of weights and measures from town councils of municipal boroughs, parish vestries, and similar bodies has already been referred to. But there is another important point to be considered. Not only are the inspectors in such localities the servants of the tradesmen, who are members of such town councils, &c., and whose weights and measures it is their duty to inspect, being appointed and dismissable by the town councils, and their pay also regulated by them; but the borough magistrates, before whom the informations are laid, who summon the offenders, and who are authorised to adjudicate upon all cases brought by such inspectors, are also frequently taken from the same class of tradesmen. It would appear, therefore, that the whole system needs a thorough reform. In the metropolitan district the county magistrates are entrusted not only with authority over the local inspectors of weights and measures, but they summon the offenders and adjudicate upon all the cases. It may be important to consider whether this course should not be generally adopted throughout Great Britain, and the power of inspection as well as of summoning offenders, if not of adjudication, be vested in the county magistrates only, being withdrawn, except in special cases of a few of the more important cities and boroughs, from all corporation and city or borough magistrates? If it should be deemed expedient to withdraw this power of adjudication from the borough magistrates, it will be requisite that enactments should empower the county magistrates to hold sessions, where necessary, in boroughs, for adjudicating upon all cases relating to weights and measures.

Under the Municipal Corporations Act of 1835, 5 & 6 Will. 4. c. 76. s. 117, boroughs were required to pay their due proportion of sums expended out of the county rate, after deducting corresponding receipts in aid of the county rate. By the Municipal Corporation Act Amendment of 1853, 16 & 17 Vict. c. 79. s. 5., boroughs appointing inspectors of weights and measures were relieved from contributing to county rates in respect of weights and measures in counties. No alteration in these enactments would be required, as upon the withdrawal of the inspectors from any borough, the payment of the due proportion of the county rates for such expenditure would be re-imposed.

I would therefore now suggest,—

1. That the authority over the inspection be withdrawn from all corporations of cities, town councils of municipal boroughs, courts of burgesses, parish vestries, lords of manors, &c., and transferred to the county magistrates; with the exception only of some of the larger and more important cities and boroughs, where the authority over the inspection should be vested in the local magistrates.

2. That such exception apply to the following 10 cities and boroughs:—

London,	Glasgow,	Manchester,
Edinburgh,	Leeds,	Salford,
Birmingham,	Liverpool,	Sheffield.
Bristol,		

3. That as a rule the local authority over the inspectors of weights and measures in the several districts should be vested in the magistrates, whose duty it is to adjudicate upon the cases brought before them by the inspectors.

As to the inspection of weights and measures exercised through the county police, under the authority of the magistrates, the evidence in its favour, and the fact of its having been already nearly universally adopted, tend to show that it ought to be established upon a uniform system recognised by law. No evidence has been produced as to a similar exercise of duties by the local police in cities and boroughs, as distinct from the county police, nor does there appear to be any sufficient reason for recommending the systematic employment of these local police officers for these duties, although such is the practice in France. Attention should, however, be drawn to the fact stated in Appendix XII., Part I., p. 383, that the consolidation of the county and borough police is progressing year by year.

4. That the county magistrates who are entrusted with authority over the local inspectors of weights and measures in the several districts should be empowered to hold sessions in all boroughs within such districts for adjudicating upon cases brought before them by the inspectors.

5. That in order to carry out as far as possible a uniform system of inspection throughout the kingdom, it be recommended to the county magistrates that (with the exception of the metropolitan district where the police are not under the authority of the magistrates) when the existing inspectors who are not officers of police shall cease to hold their offices, the expediency of selecting officers of the county police to discharge the duties be considered by them.

6. That provision be made by law that from and after six months from the passing of the Act, no appointment of an inspector of weights and measures be legal without the approval of the Board of Trade.

7. That in all cities and boroughs in which the inspection of weights and measures is not under the jurisdiction of the county magistrates, it shall rest with the local magistrates, when the existing inspectors shall cease to hold their offices, to select fit persons to execute the duties, being either local officers of police or other persons.

8. That it is expedient that in all districts where the duties are sufficient to occupy the whole time of an inspector of weights and measures, if a police officer, he shall be relieved from ordinary police duties, and that no such inspector, not being a police officer, shall have any other ordinary occupation; and that in every case in which application shall be made to the Board of Trade by the local authorities to approve of the appointment of an inspector

Appendix XII.—*continued.*

of weights and measures, it shall be stated whether the duties are or are not sufficient to occupy the whole time of the officer to be appointed, and whether he has any other duties or occupation.

Exceptional case of the metropolitan district.

There is a marked distinction to be observed between the exercise of the duties of inspector of weights and measures by the county police, who are subordinate to the local magistrates, and the metropolitan police who are not placed under the local authorities.

The existing local authorities over the inspection of weights and measures in the metropolitan district are as follows:—

1. The County Magistrates of Middlesex.
2. " " Surrey.
3. The Court of Burgesses of the City and Liberty of the Tower of London.
4. The Court of Burgesses of the City and Liberty of Westminster.
5. The Vestries of the Parishes of Paddington, St. Marylebone, St. Pancras, and St. Mary's Islington under their Local Acts.
6. The Corporation of the City of London.

There is also a small portion of the counties of Kent and of Essex comprised in the metropolitan district. Several other parishes and manors included in this district have had local standards officially verified for their use since 1825, but nearly all have transferred the inspection of their weights and measures to the county, as specified in Appendices IV. and VI. laid before the Commission.

There can be little question of the expediency of getting rid of the antiquated system of annoyance juries in the four metropolitan parishes, and in every other locality where they may be still maintained. Mr. Gibb, the vestry clerk of St. Pancras, can say little or nothing in favour of the system, and the other witnesses are strong in their opinion against it. These juries not only inspect but adjudicate in each case. To this extent at least a change in the present mode of inspection of weights and measures in the metropolis is imperatively called for.

Q. 651, 804, 1294, 1429, 2652, 2944.

The authority over the verification and inspection of weights and measures in the city of Westminster, and in the liberty of the Tower, now enjoyed by the courts of burgesses, is open to the same objection as that of town councils of municipal boroughs, that their own weights and measures are verified by their own servants.

From the evidence, it appears that the present inspectors in the metropolis under the county magistrates, and in the city of London, are vigilant officers and discharge their duties to the satisfaction of the magistrates and the public. After full consideration, I am led to the conclusion that although there is much force in the alleged advantages of the inspection throughout the metropolis being placed under one general authority, as well as in the establishment of a uniform system of inspection throughout the kingdom by means of the police, yet weight should be given to the grave objections stated by Mr. J. F. Pownall, on behalf of the Middlesex magistrates, and by others, to the transfer of the duties to the metropolitan police, and there does not appear to be any sufficient reason for recommending such compulsory transfer at the present time. There is also an important reason why such transfer of control from the local authorities to the Chief Commissioner of metropolitan police, a public officer appointed by the Crown, should not be recommended by the Standards Commission, that by the terms of the Royal Warrant constituting the Commission, they are to consider and report upon the improvement of the present system of inspection of weights and measures, *without undue interference with the authority over the local inspectors now vested by law in the local magistracy.*

Q. 1817-18. Q. 1131.

In the city of London the verifier or stamper is under the corporation, but is actually appointed by the City Lands Committee. The inspectors are appointed by a committee of aldermen sitting as justices. The duties appear to be discharged in a very satisfactory manner. In future appointments, it may be left to the judgment of the local authorities of the city of London, under whom the city police are placed, to select their weights and measures officers from this body.

It follows that local authority over the inspection of weights and measures throughout the metropolitan district should be entrusted to the county magistrates alone, except within the limits of the city of London, whilst the disturbing anomaly of the ancient privileges and existing exclusive powers of the corporation remain in force.

4. *Appointment of, and authority over Verifiers.*

4. Appointment of, and authority over verifiers.

The appointment of and authority over verifiers in Ireland may first be considered, and the question dealt with as to whether they should remain with the Inspector-General of Constabulary, or be again exercised by the grand juries of the several counties. I think that the continuance of the duties not only of inspection but also verification of weights and measures by the constabulary is most expedient, with the addition of the control of the Board of Trade. Some reasons for this recommendation of selecting officers of police for these duties have already been given in Part I. of Appendix XII., p. 385. Other reasons may be found in the circumstances that less disturbance would be occasioned in the existing system; that several of the constabulary officers have already much experience in the duties of verification, and the use of the constabulary stations may be convenient for the verifier in his round of verification. The Commission may be assured that if there should be sufficient grounds of objection to this recommendation, and better reasons for vesting the appointments in the local authorities, they will be stated and enforced by the Irish members of Parliament in the course of legislation upon the subject.

Indeed, although I would separate the duties of verification and inspection of weights and measures, and entrust them to distinct officers, I hold it to be a very material object that these two sets of officers should co-operate as much as possible in the discharge of their duties, and that when the inspection is in the hands of the police, the verifier, if duly qualified, should be selected from the same body, both in Great Britain and in Ireland. The present system of inspection appears to work better in Manchester than anywhere else. Mr. Mellor is at the head there, as chief in-door inspector or verifier, and has the out-door inspectors under his direction, although he himself never inspects. Besides overlooking the operations of verifying weights and measures, he sees that the standards and apparatus used by the out-door inspectors are in proper order, and that the officers do their duties properly. He says that from the time the whole has been placed under the control of one individual, it has been carried on very satisfactorily ever since. In each large district of inspection there ought thus to be at least one officer who understands the whole process of testing weights, measures, and balances.

I may, at the same time, call attention to the opinion upon this point expressed by Mr. Horder, inspector of weights and measures, Staffordshire. (See Appendix VI., p. 297.)

For the reasons already stated, the system of verification in the counties of Great Britain, like the inspection, should be generally placed under the authority of the county magistrates, the verifiers being selected from the police, as suggested at p. 385 of Part I. of Appendix XII., with the exception of the metropolitan district, which requires to be separately considered.

But I consider it to be also of much importance that the verifier should be not only a duly qualified person to execute the duties of verification, but that if appointed from the police, he should be expressly released from police duties, and give his whole time to his duties of verification, and be subordinate to the magistrates only.

In those larger and more important cities exempt from the jurisdiction of the county magistrates over weights and measures, the authority over the verification of weights and measures should be vested in the local magistrates.

In the Metropolitan district.

As to the verifiers in the metropolitan district, the question seems to be limited to their appointment and direction by the county magistrates, and the local authorities of the city of London, or to placing them under the general authority of the Metropolitan Board of Works (with the exception of the city of London, to which the authority of the board does not extend).

The inspection of gas meters and of petroleum in the city of London is placed under the authority of the corporation. In the remaining part of the metropolitan district, they are now under the Metropolitan Board of Works, the adoption of the Sale of Gas Act, 1859, having been declined by the county authorities.

The question of the testing of petroleum and verification of the testing apparatus has been determined by the chairman not to be within the province of the Commission. The subject of the inspection of gas meters is considered by itself in a subsequent part of this paper, as well as that of other duties besides the inspection of weights and measures imposed upon the inspectors.

p. 421, &c.

The evidence bearing upon the question thus limited is as follows:—

Captain Harris advocates the whole being placed under one authority. Q. 2595.

Appendix XII.—*continued.*

Q. 2876. Mr. Cresy, principal assistant clerk in the Metropolitan Board of Works, thinks there is no adequate reason for placing these duties under several local bodies, and on the
Q. 2892. contrary there is great inconvenience; that it is a great advantage that the Sale of Gas Act is carried out in the metropolis by one body; that it is so obviously expedient to
Q. 2893. transfer the whole authority to the Metropolitan Board of Works that he does not think any doubt could arise upon the subject; that as a central authority, no other body
Q. 2895. would offer the same facilities for carrying out a general measure of legislation upon the subject; that the transfer would be also convenient, because of course the expenses
Q. 2922. would be equally assessed over every portion of the metropolis; and that there would be the further advantage that the board are elected by the whole metropolis, and have no local favour or affection of any kind.

Q. 2990. Mr. J. F. Pownall, a Middlesex magistrate, with extensive experience of the working of the weights and measures' laws, has raised no objection against the transfer to the Metropolitan Board of Works of the authority over the verifiers, if the separation of the duties should be deemed necessary, although he thinks it highly objectionable that the board should have anything to do with the inspectors of weights and measures. He says that he sees no object in the transfer of the authority over verification to the Metropolitan Board of Works, but does not feel confident to give any opinion upon it.

Sir T. Tilson, another metropolitan magistrate of large experience, thinks it very desirable that all the duties
Q. 3020. should be under one jurisdiction, although he expresses no opinion upon the question of the transfer of the authority to the Metropolitan Board of Works.

In considering the question it should not be forgotten that whilst the Metropolitan Board of Works has provided commodious and well adapted offices for testing gas meters, the provision of offices for verification and stamping of
Q. 2844. weights and measures has been left entirely to the inspectors themselves, and at their own expense, the offices being now
Q. 2965. miserably inadequate. Mr. Pownall admits that in his opinion the providing proper offices has been improperly left to the inspectors.

Had the matter rested here, I should have been disposed to have suggested to the Commission that it was desirable that the authority over the verification of weights and measures in that part of the metropolitan district where the Metropolitan Board of Works has jurisdiction, should be transferred to them, in the same way that the authority over the inspection of gas meters and of petroleum has already been transferred and has been satisfactorily exercised.

But some further information since obtained has changed my views. The wholly insufficient accommodation of the existing offices of the inspectors of weights and measures having been pointed out to the Middlesex magistrates, they at once admitted it, and at the session of 19th November last, they passed a resolution that proper and convenient places be provided, at the cost of the county, at which the copies of the Imperial standard weights and measures shall be deposited and kept in the custody of the inspectors of weights and measures for the several districts of the county; and they appointed a sub-committee of magistrates to adopt the necessary measures for providing proper offices. The first step taken by the committee was to communicate with me upon the subject, and on 8th January the following members of the committee, Mr. Pownall, chairman of the bench of magistrates, Captain Morley, and Mr. J. F. Pownall, attended by appointment at the Standards Office in order to consult me on the subject. I thought it right at once to state my views to these gentlemen, as it could be hardly worth while for them to provide new offices, if they were soon to be relieved from the charge of the duties of verification of weights and measures, and at the same time I asked to be favoured with their opinion on such new arrangements.

One point raised by the magistrates was that with the transfer of authority over the verification of weights and measures to the Metropolitan Board, the county authorities would lose the benefit of the fees of verification, whilst they would remain charged with the expenses of inspection, hitherto mainly defrayed from the receipts of the verification fees.

This point was not considered by them to be of so much importance as the necessity of their continuing to exercise authority over both the verification and inspection, with a view to the due discharge of their magisterial functions. They did not object to the separation of the duties of verification and inspection and their exercise by distinct officers, provided that there was sufficient work to occupy the whole time of the verifier. They felt, however, so strongly the inconvenience and difficulty that might arise in adjudicating upon cases of defective weights and measures brought before them by inspectors, where the question of due conformity with the standard was to be determined, if they had no authority over the verifier of such weights and measures, whose stamp they bore, that it would be a matter of consideration with them whether in the event of the transfer of authority over the verification to the Metropolitan Board, they would not prefer being also relieved from the duties of both inspection and adjudication, and that these should be transferred to the Metropolitan Board of Works, and the cases be tried either before the magistrates who were members of that board, or by the police magistrates.

In the meantime, as to the immediate question of providing new office accommodation for the verification of weights and measures in the county of Middlesex, it was obvious that it must remain in suspense for the present, until the several points of the authority of the county magistrates over the verification, the extent of their future jurisdiction, if that authority were continued, and the mode and objects of verification, were determined.

The opinions thus expressed by county magistrates of great practical experience, with respect to the inexpediency of separating the authority over the verifiers and inspectors, deserve serious consideration. There are strong objections against charges of defective weights and measures, brought by the inspectors against tradesmen, being heard in police courts. It can hardly be the duty of the Commission to recommend important changes in the existing law and practice of inspection of weights and measures, without their being convinced of their being called for by considerations of public advantage. In the case of the county magistrates who have authority within the metropolitan district, the Middlesex magistrates have by far the largest jurisdiction, and all the information of which I am in possession bears out Mr. J. F. Pownall's statement in his Q. 2959. evidence, that practically they are sensible of the importance of carrying out the Weights and Measures Acts, and that he has never found or heard the slightest unwillingness expressed to carry out the Acts to their fullest extent.

Whilst therefore it is very satisfactory to find an expression of readiness and willingness on the part of the Metropolitan Board of Works, as well as the Commissioners of Metropolitan Police, to undertake additional duties connected with the verification and inspection of weights and measures, yet upon full consideration of all the circumstances it appears to me that the authority of both verification and inspection should continue to be vested in the county magistrates and be exercised by the Middlesex magistrates throughout the county, except as before stated in the city of London.

5. *Establishing regulations for a test examination of the qualifications of verifiers of Weights and Measures.*

5. Regulations for test examination of verifiers.

Mr. Skinner says that the magistrates having the appointment of the inspectors, it often occurs that the person Q. 667. chosen by them has no other qualification than having been known to them previously. No sufficient care is taken to make choice of educated or specially qualified persons to fill the office.

Mr. Fowler thinks it desirable that a person should be Q. 838. tested as to his qualifications to verify weights and measures before he was appointed.

Mr. Ledger is of opinion that no other qualification is Q. 1273. necessary except good common sense and general knowledge of weights and measures. A verifier ought to have that certainly, and may want a little training at first.

Mr. Morrison thinks the duties easily learnt, and that Q. 1472. the verifiers would gain sufficient information from their brother officers to carry anything out.

Mr. Short speaks well of the inspectors generally, and Q. 1653. that most of them are intelligent men. But his evidence Q. 1025, 1518, 1521, 1699, 1700, 1708. as to their clumsy adjusting of their own standards, as well as neglect and misuse of them, shows that in some instances very unfit men have been appointed.

Mr. Strugnell thinks it would be better if there was a Q. 2083. test examination before appointment.

Mr. Mellor thinks a test examination very desirable. Q. 2370.

Captain Harris on the contrary considers the matter so Q. 2633. simple that a test is unnecessary, very little explanation being required. It should, however, be observed that his experience is confined to the county inspectors, who were Q. 2089. previously superintendents of police, and as such had to undergo a strict examination on their appointment.

Upon the whole the evidence confirms my opinion, that, so far as regards the verifiers, they ought to pass a specified examination before being appointed, as is the practice in France and Sardinia.

Appendix XII.—*continued.*

6. Adjustment of weights and measures by verifiers or inspectors.

6. *Adjustment of Weights and Measures by Verifiers or Inspectors.*

This practice is condemned by nearly all the witnesses. The chief objections to it are, first, undue interference with the trade, and, secondly, want of technical skill in the inspectors. The weight and measure makers naturally offer the strongest objection to it upon both these grounds, and in Liverpool a strong feeling against it on the part of the tradesmen has been manifested.

Q. 2680, &c. On the other hand, Mr. Mellor, by whom it is systematically carried out, speaks strongly in favour of it, and its working satisfactorily at Manchester.

It would appear that in some districts the practice has become almost a necessary one for want of skilled mechanics to do the work. In Ireland particularly, Mr. Harvey says that there is the greatest possible difficulty in having the

Q. 2151-52. commercial weights and measures properly adjusted. He considers that the difficulty would be best met by official regulations empowering the verifier to adjust where necessary.

With a duly qualified verifier, and mechanics working under him, as they work under Mr. Mellor, the second objection to his adjusting weights and measures ceases to exist. There can be no reasonable objection to verifiers being authorised to adjust in those districts where there is a want of skilled working mechanics, and where their adjusting will be serviceable to the public as doing the work satisfactory and at a regulation price. There is a great difference between a verifier who does not inspect, being authorised to adjust, and an inspector who would not only have subsequently to inspect his own work, but who would naturally be inclined to make work for himself.

I would suggest, therefore, the following recommendations:—

That no local standard which may have become defective, be adjusted or mended by a verifier or inspector.

That no local standard which may have become defective, and shall have been mended or re-adjusted, shall be legal until officially reverified and re-stamped in the Standards Department.

That no commercial weight, measure, or balance which may have become defective or incorrect, shall be mended or re-adjusted by any inspector of weights and measures; nor shall it be mended or re-adjusted by any verifier, except under the special authority of the Board of Trade, and on a payment of a specified charge, according to a scale to be approved by the Board of Trade. But this regulation not to prevent small rectifications by the inspector or verifier, for which no charge shall be made.

That the Board of Trade be empowered in special cases to authorise a verifier to mend or re-adjust from time to time any weights, measures, or balances that may have become defective or incorrect, and upon payment of a specified charge.

That every application to the Board of Trade for such authority shall be made under the hands of not less than two magistrates of the district, who shall certify that the permission for the verifier to adjust is needed to meet the wants of the neighbourhood, that the verifier is himself a competent mechanic, or has a competent mechanic or mechanics to work under him, with all the necessary appliances.

7. Remuneration to verifiers and inspectors by salary only.

7. *Remuneration to Verifiers and Inspectors by Salary only, and not by Fees or a Moiety of the Penalties.*

Mr. Fowler contrasts the practice in the city of London, where the inspectors are paid by salary only, and perform their duties in a most satisfactory manner, with other districts of the metropolis where the inspectors have a portion

Q. 773. Q. 780. Q. 788. of the fines, and it is found to be most oppressive. He thinks it is an inducement to a man to act unjustly. He believes that the inspectors in all cases act fairly when the fines are not shared by them. But where they are paid by

Q. 1003. fees, and are bad men, it is an immense vehicle for them to commit fraud upon the public. He thinks that where it is made his interest to get as many convictions as he can, it is a temptation to him to procure unjust convictions. He

Q. 1012. recommends payment by salary, as adopted in the city of London, where it works admirably.

Q. 1111-12. Mr. E. Ledger, inspector in the city of London, is paid by salary only, and receives 150*l.* a year.

Q. 1312. Mr. E. Morrison, inspector in Middlesex, receives a fixed salary of 150*l.* a year, besides half of the fines and of the proceeds of condemned weights and measures. These produce about 100*l.* a year, out of which he has to pay about 70*l.*, for an assistant, rent of an office, and hire of a horse and cart, with the most economical management, leaving him about 30*l.* net, in addition to his salary. He thinks Q. 1310. that when an inspector gets a portion of the penalties, it induces him to look more after his duties, and if not, that it occasions slackness.

Mr. Short's opinion is that an inspector ought to be Q. 1667, 1678. paid a decent salary, to make him independent of any fees; that if paid by salary only, he would not be inclined to be too indulgent. Like Mr. Fowler, he instances the inspectors of the city of London as doing their duty fearlessly in every way, and he believes that there is no part of England that is better managed in that respect than the city of London.

Mr. Daws, inspector of the metropolitan district of Q. 1721, 1729. Surrey, receives 250*l.* a year salary, and has half the fines, now amounting to about 250*l.* more. But he says that this last amount only just pays his expenses, as a considerable portion of the fines is lost from people not paying them. He pays two assistants, rent of offices, cost of a horse, vehicle and stabling, and of summonses.

Mr. Strugnell, the other metropolitan inspector of Surrey, Q. 1937. has 250*l.* a year salary, and half the fines, amounting to about 220*l.* His expenses come to 170*l.*, so that he gets an additional 50*l.* net from the fines.

Mr. Mellor, though expressing in his evidence no direct Q. 2123. opinion upon this question, states the practice at Manchester to be that all the persons engaged in the inspection are paid by salary, with no emoluments whatever. He has since informed me that he has a very strong opinion indeed upon the subject of inspectors of weights and measures being paid in no other way than by salary, and not by any fees whatever, and that he fully intended to state so in his evidence.

Capt. Harris thinks the inspectors should be paid by a Q. 2621. fixed salary, and not by fees. He is strongly against paying Q. 2637. them any share of the penalties. He thinks it objectionable Q. 2649. to give them any interest in convictions.

Mr. M. Roberts also thinks the practice undesirable, and Q. 2789. that anything that is a bribe to a man to convict is a bad thing.

Mr. J. F. Pownall states a particular disadvantage arising Q. 2962. from partly paying an inspector with half the fines. That in many of the worst cases, of hucksters, where inspection is most wanted, the fines are not paid at all, the persons being sent to prison in default. The inspector, consequently, loses not only his portion of the fine, but is out of pocket the cost of the summons. The tendency, therefore, is to make him rather look after the more responsible persons, by whom he is sure that the fine will be paid.

Sir T. Tilson, who has had much experience in his dis- Q. 3027. trict, where the inspector gets half the fines, very much objects to the system, but adds that where there is no supervision of the inspectors, he sees no other way of getting them to perform their duties than by giving them something above their salaries. Where there is a proper supervision of the inspectors, it is very undesirable that they should touch any portion of the fines.

But it is to tradesmen, who are liable to the visits of inspectors, that the practice of giving them a portion of the penalties is most objectionable. Tradesmen are loud in their complaints of the grievous oppression caused by this practice, and of consequent summonses for trivial deviations.

See letter from Messrs. Seargeant and Redhead, wholesale and retail butchers at Peterborough, Appendix VI., p. 270.

From Mr. Hayman, Appendix VI., p. 263.

From Mutual Trade Protection Society, Headcorn, Appendix VI., p. 271.

My own opinion is entirely against either remunerating verifiers, by allowing them to keep any of the fees for verifying weights and measures, or paying inspectors with any portion of the fines. Each officer should receive a fixed and adequate salary, and if he fails in the proper performance of his duties, let him be dismissed. Remuneration of this kind by fees is a remnant of the old and now obsolete practice of paying officers of the civil service by fees, which, after having been long condemned, was at last properly discontinued. Allowing the inspector half the fines degrades him by placing him in the position of a common informer, and tends to exasperate the trading public against him. At the same time, if this recommendation be carried out, it would be only just that in the salary to be awarded should be included a fair compensation for the loss of any fees, or portions of fines, now received by the local officer.

Appendix XII.—*continued.*

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Q. 667.

8. *Issue of Official Instructions to Verifiers and Inspectors of Weights and Measures, for the better and more uniform Discharge of their Duties.*

Mr. Skinner is decidedly of opinion that the inspector should act under formal instructions from the Board of Trade.

Mr. Fowler thinks it would be an improvement on the present system.

Mr. Ledger says, that if there were good instructions, they would be useful.

Mr. Morrison thinks a general code of rules would be advantageous, but there are many circumstances which occur where it must depend very much upon the discretion of the inspector.

Mr. Blyth, the verifier to the city of London, thinks there ought to be no difference in the methods of stamping weights and measures, and that general official instructions would do away with practical difficulties that might arise.

Mr. Strugnell says that the very thing we want is instructions from the Government, because there are scarcely two inspectors in the whole metropolitan district that work alike. Therefore, if there were any particular instructions laid down, it would be to the public advantage.

Mr. Mellor has no doubt that such instructions would tend to the public advantage. He has always contended, if it is wanted to do that which Parliament has been trying to do ever since the time of King John, namely, to have uniformity of weights and measures throughout the realm, instructions must emanate from a department such as the Standards Department, and somebody must go round and visit every inspector and see that he carries them out. It is no use issuing instructions to parties unless you have an opportunity of checking them, and seeing whether they do carry them out or not.

Capt. Harris says it is most desirable that detailed instructions should be issued for obtaining uniformity of action throughout the kingdom with respect to the mode of inspection. They might be forwarded from the Board of Trade to the constabulary through the Home Office.

Mr. Harvey thinks it would be a good regulation if the duties of the inspectors of weights and measures in Ireland were carried on under specific instructions issued to them from the Board of Trade, so as to ensure uniformity of practice throughout the kingdom. There is a great deal of doubt and ambiguity about the present law as to weights and measures, and about the regulations on the subject generally. The duty of inspectors of weights and measures not being a purely constabulary duty, the Inspector-General would consider it an advantage to have an authoritative legal or scientific opinion with reference to any order that he might issue to the force.

It will be seen that the several witnesses are unanimous as to the expediency of establishing regulations for the issue of official instructions for the guidance of the local officers.

The preparation of these instructions, which should form a code of detailed regulations for the material and mode of construction of standards, and of weights, measures, and balances, their verification and stamping and use, will require much care and consideration, and they should be submitted for the approval of the experienced and scientific members of the Standards Commission. This will be a labour which cannot be performed until after the decision of the Legislature shall have been given to authorise the issue of the instructions, and to sanction such of the recommendations of the Commission in their several reports as may be deemed expedient. The framing the instructions, both as to their form and substance, will be much facilitated by the precedent of the official instructions issued in France in relation to the metric system, the substance of which is appended to the Second Report of the Commission, as well as similar instructions in the North German Confederation, a copy of which I have just received from the Standards Commission at Berlin, and which will be laid before the Commission. Attention may also be drawn to Mr. Mellor's general instructions to the out-door inspectors of weights and measures for the borough of Manchester.

9. *Appointment of Official Inspectors of Standards for the supervision of the Local Officers and their Instruments of Verification and Inspection.*

Mr. Skinner says that when the inspectors are once appointed, they are quite independent of any control, except of the magistrates, and that he fears has been but little exercised. The Board of Trade should appoint a few superintendents of inspectors to visit them now and then unexpectedly. If it was only once in two years, it would have a beneficial influence on their conduct.

Mr. Fowler thinks the most complete system would be to have regular superintentendents, who were competent to instruct the inspectors properly. Although inspectors generally conduct their business satisfactorily, yet there are some who are so stupid that if a superintendent were to go round, he could find out immediately whether they were qualified or not. We have no other means of testing them, or seeing whether they do their duty. Q. 833.

Mr. Mellor has no doubt of the expediency of establishing such supervision. He thinks it would be one of the most useful things that Government and Parliament could do. Q. 2376.

Mr. M. Roberts recommends the appointment of two or three Government general inspectors for the whole kingdom, and would indeed substitute them for the local county inspectors. Q. 2731.

Sir T. Tilson does not very clearly see how a supervision of the mode of inspection is to be carried out, but with respect to the verification, it is very desirable to have a supervision of what is done at the offices. Q. 3039. Q. 3040.

Mr. Harvey is also of opinion that it would be very desirable that special supervisors under the Board of Trade should go round periodically and inspect the local standards and apparatus, and the mode of performance of the duties in Ireland. Q. 3143.

The evidence confirms the opinions of competent authorities, already laid before the Commission, showing the expediency of establishing an efficient official supervision over the local officers, their apparatus, and the discharge of their duties.

These opinions will be found stated in Appendix I., p. 3, being those of the Astronomer Royal, of Lord Monteagle, and of the Select Committee of the House of Commons on Weights and Measures in 1862. At p. 6 of the same Appendix will be found some practical suggestions for carrying out their recommendations.

10. *Periodical reverification of Local Standards.*

10. Periodical reverification of local standards.

Mr. Fowler thinks the periods now fixed by law, viz., not less than five years for weights and ten years for measures, far too long, and they should be reduced one half, viz., two years and a half for weights, and five years for measures. Q. 820, 821.

Mr. Short also thinks the period of five years for weights too long in many instances, and that five years is long enough for measures. Q. 1689–93.

The length of time before the expiration of which, with a view of their due accuracy, the local standards should be reverified, must necessarily vary in every case with their use and the care taken of them. The weights are most liable to become defective, and it has been generally admitted that they should be reverified twice as often as the measures. If the experiments for making glass standard weights should be successful, and such weights be used as local standards, they may be less liable than metallic weights to get out of order.

It is to be observed that the regulation for the periodical reverification of local standards, enacted in 1859, was proposed in Bills brought into the House of Commons in each of the two preceding sessions. The Bills of 1857 and 1858 contained a provision that all such standards should be reverified every three years. The Bill of 1859, as originally introduced, and as amended by the Select Committee, required the local standard weights to be reverified every three years, and measures every six years; but these periods were subsequently altered in the further progress of the Bill through the House of Commons.

Considering also that it is now customary for many of the standard weights which are much in use to be officially reverified every year, and that it is proposed to have a periodical examination of all the local standards by an official inspector, who should be authorised to require all defective standards to be forthwith adjusted, it may probably be thought that no alteration of the periods already fixed by law are now called for.

11. *Scale of Allowance for Error in Official Comparison of Standards.*

11. Scale of allowance for error in official comparison of local standards.

Mr. Fowler thinks it would be better if the allowance should be in excess only, not in deficiency. He would have the system here as in France, never to acknowledge a deficient weight. Q. 816.

Mr. Short also considers the provisional allowance of error in avoirdupois weight is too much. He would not allow any deficiency, only a trifling reasonable amount of excess. In a 56 lbs. and 28 lbs., 3 grains; on 14 lbs. and 7 lbs., 2 grains; on 4 lbs. and 2 lbs., 1 grain; on 1 lb. and 8 ozs. Q. 1687.

Appendix XII.—*continued.*

$\frac{1}{2}$ grain; on 4 ozs., 2 ozs., and 1 oz., $\frac{1}{4}$ grain. In other standard weights and measures he is satisfied with the official scale, except that he would not officially stamp any standard weight at all less than the standard. Q. 1705-6.

I consider that it will be better for the present to leave the provisional scale as it now stands, and that the Board of Trade be empowered by statute to issue official regulations from time to time to determine the amount of error to be allowed in the official comparison of standards. Such regulation will be required for all the new standards to be legalized.

When any changes are actually made, our departmental experience leads us to recommend the following as desirable:—

Weights. With the view of preventing the inconvenience to the inspector or verifier of possessing standard weights which differ sensibly from each other owing to some of them being in excess of imperial standard, and others in deficiency; and to encourage the manufacture of standard weights as nearly equal to imperial standard as possible; as well as to allow for the wear and exposure which standard weights experience after their verification in the Standards Department, the tendency of all local standard weights being to become light;—it is proposed to limit the amount of allowance for errors in deficiency to one-half the amount allowed weights in excess.

The present scale of errors in the official comparison of local standard weights, altered accordingly, will probably be found sufficient; but they have been calculated on the capabilities of the old official balances to show decided deviations from the standards during the weighings, and further experience of the working of this scale may make a modiecation desirable.

Capacity. The scale of errors to be tolerated for measures of capacity may require some alteration. Allowing for cleaning and damage, it does not appear desirable in the measures of capacity to limit the amount of allowance for errors in deficiency, as proposed in the weights. The present allowances, however, may be somewhat increased, as they have been found insufficient, and the following scale adopted, viz.:—

Bushel. Allowance in excess or deficiency		256,	grains. or about 1 cubic inch.	
$\frac{1}{2}$	,,	128,	,, 0·5	,,
Peck	,,	64,	,, 0·25	,,
Liquid measures:—				
Gallon	,,	64,	,, 0·25	,,
$\frac{1}{2}$	,,	32,	,, 0·125	,,
Quart	,,	16,	,, 0·06	,,
Pint	,,	16,	,, 0·06	,,
$\frac{1}{2}$	,,	8,	,, 0·03	,,
Gill	,,	8,	,, 0·03	,,
$\frac{1}{2}$	,,	4,	,, 0·015	,,

Length. The present allowances for measures of length might also be increased to a uniform allowance of 0·005 inch for all commercial standards of length, and 0·0005 for scientific measures of length for all line or end measures, and 0·01 inch for commercial standard bed measures. Since adopting the new commercial standard of length, with its attached comparing apparatus, it has been practically ascertained that the inspectors' standard yards, which are all bed measures, with large defining surfaces, are rarely found, upon comparison, to be accurate to 0·005 inch, and considering the purposes for which these standards are used, an allowance of error of 0·01 inch may be permitted.

Volume. The present allowance for gas-measuring standards may also be altered so as to allow an error of $\frac{1}{2}$ per cent. in excess, and $\frac{1}{4}$ per cent. in deficiency, local gas-measuring standards becoming small by use and age.

12. Question of allowance of error in commercial weights, measures, andbalances.

12. *Question of Allowance of Error in Commercial Weights, Measures, and Balances.*

The question whether any or what amount of error should be allowed in the comparison with the local standards of any weights and measures in common use, is one upon which the Commission are specially required by Her Majesty's Royal Warrant to report.

In Appendix II., p. 30, some remarks upon this question will be found, and in Part I. of Appendix XII., p. 388, reference is made to the evidence of some of the more experienced inspectors of weights and measures, the general result being a nearly unanimous opinion that no such allowance should be directly recognised or sanctioned by law.

Appendix VI., p. 262. In his letter to the President of the Board of Trade, dated 11th January 1867, Mr. Hayman, on the part of the trading community, calls attention to the fact that the law as it now stands, tolerates error in the standards where accuracy is most of all needed, and exacts perfection in the tradesman's weights and measures, where it is utterly impracticable. This is hardly a fair way of putting the case, as the test applied to the local standards is altogether different from and far more accurate than that used with commercial weights and measures.

It is deserving of notice that whilst in Mr. Hayman's papers and in others on the part of traders, there are frequent suggestions that trifling deviations in their weights or measures, or balances, should be passed over without inflicting a penalty, there is but one direct application for a stated allowance of error, from the Bearstead Trade Society. Their petition to the Board of Trade asks that in any new Act a fair allowance for variations, more or less, be allowed in tradesmen's weights and scales, for wear, accumulation, or atmospheric influence, such as are known constantly to exist. Appendix VI., p. 292.

Among the evidence since given to the Commission, Mr. Fowler says there should always be a slight allowance of error in commercial weights and measures, because by friction or dust a weight is soon made incorrect. He would allow $\frac{1}{4}$ oz. in a 56 lb. weight. Q. 776.

Mr. Short states that on an average a 56 lb. weight would become $\frac{3}{4}$ oz. light in six months, with fair wear and tear, and a smaller weight in about the same proportion. He should not think of allowing any error in commercial weights, but in adjusting rough weights of 56 lbs. he always takes care to leave them $\frac{1}{4}$ oz. heavier than the standard, as they soon wear down by use. Q. 1057. Q. 1650.

Mr. Ledger, the inspector in the city of London, does not seize the larger weights for a deficiency of $\frac{1}{4}$ or $\frac{1}{2}$ oz., and when weights are seized for a small deficiency there is seldom a conviction. Q. 1230.

Mr. Morrison, the Middlesex inspector, says that the law of course requires standard weight, but it is impossible to keep weights up to it. There must be something allowed for wear and tear. He would not take a 1 lb. weight from a provision dealer that was $\frac{1}{2}$ dram light. That would be too nice a great deal. But he would seize one $1\frac{1}{2}$ drams short. He would seize a publican's quart 1 oz. deficient, and other measures in proportion. Q. 1443.

In his carefully drawn instructions to his out-door inspectors, Mr. Mellor (No. 6) says, that great discrimination and judgment is requisite in making seizures of weights and measures, or laying information about scales, care being taken not to bring frivolous or vexatious cases before the magistrates. Q. 2406.

Mr. Roberts, the Brecon magistrate, thinks any tolerance in tradesmen's weights and measures would lead to no end of evil. Q. 2816.

A full consideration of the question leads to the conclusion that no alteration of the law is called for to sanction any scale of allowances for errors in commercial weights, measures, or balances, and that no just cause of complaint will remain on the part of tradesmen, if the official instructions to inspectors authorise them to use a discretionary power in the exercise of this portion of their duties, and that they should not make seizures or lay informations for small deviations from the standards, but only in such cases of negligence or fraud as may suffice for the protection of the public. The magistrates should also be empowered to dismiss frivolous cases.

13. Official regulations for construction of weights, measures, andbalances.

13. *Regulations for Construction of Weights, Measures, and Balances.*

In Resolution 4, contained in Section 16 of the Second Report of the Commission, it has been already recommended that during the concurrent use of the Imperial and Metric systems, and in order to prevent as far as possible the weights and measures of the two systems from being accidentally or fraudulently substituted for each other, authoritative regulations should be published, under which each series may be readily and easily distinguished, by the adoption of conspicuous distinctive forms or marks for the several weights and measures, and by such other mode as may be determined after due inquiry.

For the carrying out of this recommendation it may be sufficient in the first instance that power be given by statute to the Board of Trade to make and issue such regulations from time to time, as they may deem expedient for the material, and mode of construction and verification of all weights, measures, and balances, including weighing machines. In this respect the course now adopted in France and the North German Confederation may well be followed in this country, with respect to both the metric and the imperial systems of weights and measures. It will remain for consideration how far it may be desirable to establish the French regulation (see Appendix to Second Report, p. 43), that models and designs of all weights and

Appendix XII.—*continued.*

measures which are legally authorised be deposited in every office of verification, and be open to the inspection of all persons who may wish to see them. The detailed regulations applicable to the weights and measures cannot be completed until the whole series of legal denominations shall have been determined upon, and the requisite standards shall also have been legalised. The construction of balances has already been considered under the head of Mr. Skinner's suggestions (see p. 397).

14. *Weights, Measures, and Balances to be stamped with the Initials or Mark of the Maker, and all such Makers to be duly registered.*

There is one important regulation that it appears expedient to make with the view of preventing as far as possible the construction and sale of defective or fraudulent weights, measures, and balances. It may be required by law, under penalty, that no weight, measure, or balance used in open sale, or in possession of any trader, subject to inspection, be legal, unless in addition to the stamp of the verifier, it bears also the stamp or mark of the maker.

In order to enforce some responsibility on the maker, as well as to afford security to reputable makers every maker of weights, measures, and balances should be duly registered in the Standards Office, at the commencement of every year, and his name, residence, and distinctive mark recorded, the mark to be impressed with a stamp, being first approved by the Warden of the Standards. Each maker should pay a small annual sum for registration, to be levied by a stamp upon the certificate of registry. I have been informed by some of the principal makers that such a regulation would not be objectionable to them, as it would act as a protection to the fair dealing tradesmen. There should be not only a penalty upon any maker selling a weight, measure, or balance without his name or mark upon it, or for marking it without being duly registered, but also a provision for punishing any fraudulent imitation of the name or mark of such registered maker.

15. *Original Verification and periodical Reverification of Weights and Measures.*

The mode in which these duties are systematically exercised in France has been described in detail in Appendix II. to the Second Report of the Commission.

During my official visit to Paris last year I had an opportunity of visiting the Chief Bureau de Vérification, where all weights, measures, and balances are originally verified, and one of the ten Bureaux d'Arrondissement, where the periodical reverification is carried on. The following printed forms are used at the latter office, by which it will be seen that the annual reverification of the larger weights and weighing machines is made on the premises where they are used, whilst all other weights, measures, and balances subject to inspection must be brought to the Bureau for reverification.

Form 1.—Periodical Notice to Tradesmen to have their Weights, Measures, and Balances duly reverified.

POIDS ET MESURES.

2e Bureau
(3e et 4e Arrondissements)
Rue Turenne, No. 50.

(Le Public est reçu de 10 heures à 3 heures.)

Paris, le 1869.

(Rapporter cet avertissement, ou, à défaut, celui des Contributions.)

Nota.—*Les instruments qui ne seront pas présentés en parfait état de propreté seront refusés.*

Monsieur,

Vous êtes invité à présenter au bureau, *dans le délai de trois jours*, pour être vérifiés et poinçonnés, à la lettre D., les Poids, Mesures, et Balances (ces dernières sans leurs colonnes), qui, d'après l'Ordonnance de M. le Préfet de Police, sont obligatories dans l'exercice de votre commerce, profession, industrie; ou que vous avez en votre possession.

Le Vérificateur,
Geoffroy.

P.S.—Si vous avez une *balance-bascule ou une romaine de forte portée* (100 kil. et au-dessus), *ou* 20 *poids au moins de* 20 *kilog.* veuillez en faire la déclaration au bureau. Ces instruments seront alors vérifiés *à votre domicile* ainsi que les *balances et les poids en fer de* 20, 10 *et* 5 *kilog.* Tout autre matériel doit être apporté au bureau ci-dessus indiqué.

Toute lettre n'est reçu qu'affranchie.

PREFECTURE DE POLICE.

Verification des Poids et Mesures.

A Monsieur
ou son Successeur,
Rue *Paris.*

Form 2.—Second and more peremptory Notice to Tradesmen who have neglected the periodical Notice.

POIDS ET MESURES.

2e Bureau
(3e et 4e Arrondissements)
Rue Turenne, No. 50.

(Le Public est reçu de 10 heures à 3 heures.)

(Rapporter cette sommation, ou, à défaut, l'avertissement des Contributions.)

Nota.—*Les instruments qui ne seront pas présentés en parfait état de propreté seront refusés.*

Paris, le 1869.

Monsieur,

Vous avez négligé de vous rendre à l'invitation qui vous a été faite de présenter à la vérification, dans le délai de trois jours, vos instruments de pesage et de mesurage.

J'ai l'honneur de vous informer que si vous différez plus longtemps de vous soumettre à la loi, ou de produire vos observations, vous serez exposé à ce qu'un procès-verbal soit dressé contre vous.

Le Vérificateur,
Geoffroy.

P.S.—Si vous avez une *balance-bascule* ou *une romaine de forte portée* (100 kil. et au-dessus), ou encore 20 *poids au moins de* 20 *kil.*, veuillez en faire la déclaration au bureau. Ces instruments seront alors vérifiés *à votre domicile*, ainsi que les *balances et les poids en fer de* 20, 10 *et* 5 *kil.* Tout autre matériel doit être apporté au bureau ci-dessus indiqué.

Toute lettre n'est reçu qu'affranchie.

Form 3.—Notice to Traders to have their Weights, Measures, and Balances, which have been found defective, removed and readjusted for reverification.

NOTE DE RAJUSTAGE.

Verification des Poids et Mesures.

A rapporter dans le plus court délai avec les Instruments rajustés.

Au 2e Bureau, Rue Turenne, No. 50, de 10 heures à 3 heures.

Quartier

M.

Poids en fer :
Poids en cuivre :
Balances :
Balances-bascules :
Romaines :
Mesures de longueur :
Mesures de capacité :

No.

Paris, le 1869.

Le Vérificateur,
Geoffroy.

N.B.—Les instruments défectueux ci-dessus indiqués sont laissés au propriétaire *sous sa responsabilité*, à charge par lui, *pour n'être pas en contravention*, de les remettre immédiatement à un balancier-ajusteur de son choix et de les représenter au bureau aussitôt la réparation effectuée.

Form 4.—Mode of Payment of Fees of Verification by Hawkers and Itinerant Dealers.

Verification des Poids et Mesures.

Exercice. 1869.

No.

Bulletin de Paiement par anticipation de la Rétribution due pour Poids et Mesures par les Marchands ambulants et étalagistes, en exécution de l'article 21 de l'ordonnance du 17 Avril 1839, et de l'instruction ministérielle du 30 Août de la même année.

Monsieur le Receveur-Percepteur du 3e Arrondissement, 2e Division de Perception, demeurant Rue du Grand-Chantier, recevra de M.

la somme de
qui sera portée dans un Rôle spécial de Poids et Mesures du dit arrondissement de perception.

Paris, le 1869.

Le Vérificateur des Poids et Mesures du 2e Bureau,
Geoffroy.

A somewhat similar system of original and periodical verification has been practised by the inspectors at Manchester and at Bath, as already reported in detail to the Commission. It is obviously desirable that authoritative detailed regulations should be drawn up and issued in order to enforce a uniform and systematic discharge of these duties of verification, in accordance with general provisions to be enacted by statute.

Mellor, 2684, 2698. App. VI.

16. *Verification and Stamping of Balances and Weighing Machines.*

16. Verification and stamping of balances and weighing machines. Q. 557, &c.

Mr. Skinner strongly advocates the adoption of such a regulation; and that the balances should also be marked with the name of the maker. He has also submitted some clauses for carrying out this object.

Appendix XII.—*continued.*

Mr. Fowler thinks it would be difficult to carry out the regulation in the country, as it is carried out in France, where every part of a balance is made to a gauge. But he admits that it would be a certain guarantee that the balance was properly constructed and a true balance when stamped. He considers, however, that there would be immense difficulties in testing all the balances, which would occupy more time than the verifier could give. It would be very desirable if it could be carried out, but he thinks that as balances and weighing machines are now constructed here, it would be almost impossible. Q. 739. Q. 751. Q. 756.

Mr. Short does not believe in stamping balances and weighing machines, and considers that it would never do, in consequence of the daily variation of balances, and that therefore it would be folly to stamp it. He altogether objects to it; but he admits that such a regulation would prevent the sale of cheap and faulty balances now commonly sold. Q. 1550. Q. 1553. Q. 1557.

Mr. Mellor considers it very desirable that balances should undergo inspection before being sold. It would be a guarantee that they were then correct and a protection to tradesmen in buying a balance. An honest tradesman is very anxious upon that point. The beam should be stamped, not the pans. He objects to inserting a copper or brass pin to receive the stamp, as it would weaken the beam. It might be done by engraving at a cheap rate, and by stamping on a bit of solder fixed to the middle of the beam. Q. 2175. Q. 2177. Q. 2178. Q. 2228. Q. 2230.

The mode of verifying and stamping balances and weighing machines in France, as well as their construction, according to the original official instructions issued in 1839, is stated in detail at p. 69 of the Appendix to the Second Report of the Commission. There is no difficulty on the part of the verificateurs, or objection on the part of tradesmen to carrying out the existing regulations, as I ascertained during my official visit to Paris last year, from the Verificateur-en-chef. Experience proved that the original instructions for the mode of constructing balances were insufficient to prevent many faulty and defective balances being sold for trade purposes, and consequently leading to fraud and error. (See ib., p. 79.) The French Government accordingly decided in May 1855 to issue further regulations for the construction of these balances, in order to protect dealers against badly constructed balances. They ordered that from 1st January 1856, the knife edges and bearings should be of steel, tempered and polished; the beams of wrought, not cast iron, made of sufficient strength to carry the stated weight; and the maximum weight the balances were made to carry should be inscribed upon the pedestal. The beams were to be made with a stud for the impression of the Government stamp, as nearly as possible in the centre of the beam.

With the precedent of the system adopted in France, it does not appear to be that the objections stated by Mr. Fowler and Mr. Short are sufficiently weighty to overbalance the direct recommendation of Mr. Skinner and Mr. Mellor.

It may be sufficient to provide by law that after a specified period from the passing of the Act, no balances or weighing machines shall be sold or used for the purposes of buying or selling, or transport, without being duly verified and stamped according to such regulations as shall be issued by the Board of Trade.

It does not appear to be expedient to re-stamp balances and weighing machines on reverification. In France the beams are stamped only on original verification.

The official regulations may provide for the proper construction of balances and weighing machines, including their centres and bearings being of steel.

17. Official stamps of verification.

17. *Official Stamps of Verification.*

For the purpose of giving a more official character to the verification of weights, measures, and balances, as being authorised by the Government, and of securing the use by verifiers of a uniform stamp throughout the kingdom, as well as of distinguishing the stamp of each district of verification, it may be expedient that the course adopted in the Sale of Gas Act, 1859, with respect to the stamps used by inspectors of gas meters be followed, and that the verification stamps be furnished to the chief verifier of each district by the Standards Department, each bearing a progressive number. The stamp may consist of a crown, with V.R., and the number of the district, thus:—

A series somewhat similar, as regards the sizes, to those issued in France would be required, (see App. II. to Second Report, p. 71), and would be available for both imperial and metric weights and measures.

The French verification stamps are 10 in number, viz.,—

Verification stamps to be used by hand—
- No. 1. for large iron weights.
- No. 2, for wooden measures of length.
- No. 3. for middle-sized and small iron weights.
- No. 4. for large balances and steelyards, and weighing machines.
- No. 5, for small balances and steelyards.
- No. 6, for large and middle-sized brass weights.
- No. 7, for small brass weights.

Verification stamps, adapted for a press—
- No. 8. for large wooden measures of capacity.
- No. 9. for middle-sized and small wooden measures.
- No. 10, the smallest, for metal measures.

This number of stamps will hardly be required. Three sizes of stamps for metallic weights and measures, and balances, or weighing machines, to be struck with a hammer, and three sizes for wooden measures of capacity and length, to be used as a brand, would probably be found sufficient.

According to the present practice with respect to gas meter verification stamps, the local authorities are required to repay to the Standards Department the cost of each stamp supplied to them. But a serious difficulty has arisen from this practice. The inspector of gas meters in the borough of Kingston-upon-Thames, who was removed from his office, continued to retain the Government stamp, and there was no security against his making an improper use of it. This state of things involved protracted and expensive legal proceedings by the local authorities. In order therefore to maintain a more efficient control over the verification stamps of weights and measures, and their proper use by the verifier, it is suggested that the stamps be supplied at the cost of the Government, and remain Government property legally reclaimable by the Board of Trade, or their officer, the Warden of the Standards, if occasion should so require. Such a regulation may also be properly extended to the gas meter verification stamps.

18. *Legality of adjusting Ball for Balances.*

18. Legality of adjusting ball for balances,

Upon this question, which is one of considerable importance to a very large number of tradesmen, much evidence has been given to the Commission, and it may be briefly recapitulated.

Mr. Skinner considers the balance ball necessary for tradesmen, and that no honest man ought to be deprived of the mode of adjustment. Tradesmen ought to have it for their own protection, and that of their customers. He thinks that if they were allowed, the power of the inspector would be quite sufficient to guard the public against fraud on the part of tradesmen. Q. 563. Q. 567. Q. 690.

Mr. Fowler expresses the same opinion, and says that these adjusting balls never could have been tampered with by tradesmen, and that the decision against them in the Court of Queen's Bench was given on an *ex parte* statement. Q. 727–28.

Mr. Ledger never interferes with them, and only requires that they shall be as much a fixture as possible, and that the balances where they are used shall be particularly correct. He admits that there is no question that in the hands of a dishonest man they may be used for purposes of fraud. Q. 1241. Q. 1243.

Mr. Morrison never summons for a balance ball, but thinks them unnecessary, and the proper mode of adjusting is to have lead or some soft metal run into the small scale which they can cut away. That could not be altered so easily as a balance ball. He says the greatest objection to them is that they are not used for the purpose for which they are intended, and he finds the beams of scales that have balance balls kept just an inaccurately as if they had no balance ball; where this ball is part of a defective balance, the justices usually inflict a double penalty. Q. 1449. Q. 1451. Q. 1452.

Mr. Short now fixes the screw of the balance ball with a pin, so that it cannot readily be opened. He says there is a great misapprehension about these balance balls, and that they are the best things that can possibly be for all honest men; but if a man is inclined to commit fraud, he can do it with the balance ball or without. He thinks the reversal of the decision against them would be a great benefit, and in that case that the inspector acted very unjustly when he made the seizure. Q. 1536. Q. 1537. Q. 1539. Q. 1541.

Mr. Daws never interferes with balance balls when the scales are correct. He thinks that tradesmen ought to be allowed such means of adjusting their scales, but when they use them, that they ought to be summoned for a slighter deficiency than those who do not use them. Q. 1776.

Mr. Strugnell does not interfere with them, or object to balances thus constructed. Q. 2027.

Appendix XII.—*continued.*

. 2327-40. Mr. Mellor decidedly objects to balance balls, and concurs with Mr. Morrison, that balances are better adjusted with a soft piece of lead soldered to the pan, and a little to be removed if it got too heavy.

The scale makers are unanimous in expressing strong opinions in favour of the balance ball, although as Mr. Skinner says, its use would not be a bit the better for them.

. 567. If the ball were properly secured to the scale, and the screw fastened with a pin, according to Mr. Short's plan, so that the ball could not be readily opened and readjusted so as to deceive the inspector, I think that it could not facilitate fraud and should be legalised. There is no evidence that any fraud has actually been committed by means of a balance ball, and it is quite impossible to make any regulation that will absolutely prevent fraud. It appears to be a clumsy mode of adjustment to melt solder into one of the pans, and to scrape it away from time to time, according as the pan may be found too light or too heavy. This is just one of those questions of detail that may properly be left to the Board of Trade to deal with in their official regulations under the heads of Construction of Balances and Instructions to Verifiers and Inspectors of Weights and Measures.

I would, however, point out that if balance balls are allowed, not only their mode of construction, but their weight should be regulated. The balance ball now frequently weighs 4 lbs. I am informed by Messrs. Vandome that the daily variation of a counter balance, such as a balance ball is usually fitted to, never exceeds half a dram, even when the balance is in constant rough use.

9. Draught a tradesmen's scales.

19. *Draught in Tradesmen's Scales.*

The very general custom of a draught in tradesmen's scales in their own favour, alleged by them as requisite to counterbalance the turn of the scale demanded by customers, has been fully referred to in Appendix VI., p. 296. No alteration in the law which requires all scales to be even and just appears to be called for; further than to make the law upon this point unmistakeably clear and distinct, by extending to Great Britain the provisions of s. 13 of the Irish Weights and Measures Amendment Act of 1862, declaring the mode in which every article sold by weight shall be weighed. No draught in scales should be legally recognised. This would be analogous to an allowance for error in tradesmen's weights and measures, and it has not been considered expedient to sanction by law any such allowance, nor is any such allowance now recommended.

). 2197. Mr. Mellor says that his practice is just to allow the scale to turn in the slightest degree. It may be sufficient to state in the official instructions to inspectors for practically carrying out the law, that amongst the small deviations from its strict letter from which no real loss can be sustained by the public, inspectors should not take cognizance of such a draught in scales in favour of the tradesmen, as may be justified by the countervailing turn of the scale commonly required by customers.

20. Inspecting parcels of goods made up of specified weight.

20. *Inspecting parcels of goods made up of specified weight.*

Q. 1456. Q. 1457. Mr. Morrison thinks, as regards parcels weighed up, the greatest frauds exist, and inspectors have no power to correct it at present. He approves of a regulation that, in all such cases, the weight shall be marked on the outside of the parcel, and inspectors should be empowered to weigh such parcels, and, if found deficient, that they should seize them as defective weights. He thinks it would be very beneficial to the public, and would render the seller much more careful than he is at present.

Q. 1458.

Q. 1799. Mr. Daws also thinks such a regulation would be a remedy against existing frauds of this description, and a very great benefit to the public. He says there is now a great deal of fraud committed in this way.

Q. 1798.

Q. 2030. Mr. Strugnell is of opinion it would be a very great improvement in the law. They have no means of punishing parties to these frauds.

Q. 2348. Mr. Mellor has numerous entries in his books of such fraudulent cases, where the inspector has no power to interfere. He thinks that the law should give further power in that respect to somebody, at any rate to the public themselves, as in the case of bread, so that they could insist upon goods being weighed in their presence, and that there should be a penalty upon refusal. He is afraid that the proposed regulation would interfere too much with the liberty of the subject. It might be a proper regulation in some respects, but he thinks shopkeepers would protest most strenuously against it, and that the better plan would be to adopt the principle of the Bread Act, and apply it to all articles sold. Such a provision he considers would meet the case, and would not be so arbitrary.

Q. 2351.

Q. 2378.

Q. 2380.

Mr. M. Roberts proposes that the police constable should be at liberty to seize all goods, whether in shops or open market, made up for sale, but deficient in the pretended weight. Q. 2731.

With respect to the provision in the Irish Weights and Measures Act, that if any fraud shall be wilfully committed in the using of any weights, measures, or balances, in shops and other places, the same shall be liable to be seized by the inspector and forfeited, and a penalty imposed upon conviction; and to a further provision imposing a penalty of 5*l.* upon any person who shall "knowingly weigh or "cause to be weighed, contrary to the provisions of the "Act, or act or assist in committing or conniving at any "fraud respecting the weighing or the weight or measure "of any article," Mr. Harvey says, that these powers have not been exercised to any considerable extent in his experience, and suggests that the law should be made more clear, and a more express provision for checking fraud of that sort made by the Legislature. Q. 3124.

Mr. Skinner proposes that inspectors should not take goods off the shelves or other places in the shops, that are in bags, packets, or parcels, supposed to be weighed up ready for sale. If they wish to ascertain their accuracy they must become purchasers of them. On discovering any fraud in more than one packet or parcel, they may summons the owners of the goods. All slight deviations not to be noticed, such as might arise from the drying of the goods. See p. 398.

I cannot but consider Mr. Mellor's suggestion that it will be sufficient to empower the public to insist upon the goods being weighed in their presence, and a penalty to be imposed on refusal, as inadequate, though it is in itself a very proper regulation to be made. The public who really suffer most from the fraudulent practice complained of, are the poor who buy articles of food on Saturday nights in crowded shops, and it would be impossible for them to protect themselves by the power of insisting to see the article weighed. Even if this were done in their presence, it would probably be weighed in a hurried way, and thumped down into the scale, and they would be none the wiser as to whether they got just weight or not. This is a case in which the maxim *caveat emptor* does not really apply, and the inspector must interfere if such frauds are to be put down, and by means of a similar summary process as in the case of fraudulent weights and measures.

Mr. Skinner's opinion that inspectors should not have the power to take goods off the shelves, &c., in shops, deserves consideration, but I can see no other way of dealing effectually with frauds of this kind than by requiring the weight to be legibly marked upon the parcel, and that the inspector be empowered to require a few of the parcels to be produced before him to be weighed, and that he may seize any two or three of these parcels if he finds evident fraud, and inform against the seller, who should be liable to a penalty on conviction.

21. Punishment of fraudulent weighing or measuring.

21. *Punishment of Frauds in Weighing or Measuring Goods for Sale, &c.*

The subject of frauds in weighing and measuring goods for sale, purchase, or transport, that is to say, fraudulent methods of using weights, measures, and balances, which may be correct in themselves, as distinguished from frauds or defects in these instruments, deserves particular attention.

In the Irish Weights and Measures Amendment Act of 1862, there are special enactments, ss. 14, 15, and 16, for the prevention of frauds, the most comprehensive of which is to the following effect:—

If any person shall knowingly weigh or cause to be weighed, contrary to the provisions of this Act, or act or assist in committing or connive at any fraud respecting the weighing, or the weight or measure, of any article sold by weight, or the subject of any contract, bargain, sale, or dealing, he shall for each offence be liable to a penalty not exceeding 5*l.*

This provision is one of several others contained in s. 14, imposing a fine only; and it is noticeable that the next clause, s. 15, imposes a penalty of 40*s.* fine, or *imprisonment for any period not exceeding one month*, as the justices shall determine, for fraudulently increasing the weight of butter in casks. This is the only offence for which the punishment of imprisonment is awarded. But there is a special clause providing that nothing in the Act shall prevent persons from being indicted for indictable offences, or being liable under any Act or otherwise to any other or higher penalty or punishment than is provided for any offence by the Act, so that no person be punished twice for the same offence.

Appendix XII.—*continued.*

In the weights and measures Acts of Great Britain, however, there is at present no enactment for punishing frauds in the mode of weighing and measuring, but only where the fraud is proved in the weights, measures, and balances.

Q. 1256. Mr. Ledger, inspector for the city of London, says that an enactment for prosecuting all frauds in connexion with weights, measures, and balances, as well as false and defective instruments, would very much increase the duties of the inspectors, and be an additional protection to the public. That there is more fraud carried on with just weights and measures, than unjust ones.

Q. 2030. Mr. Strugnell, another metropolitan inspector, says that such an enactment would be a very great improvement in the law. We have now no means of punishing parties committing such frauds.

Q. 2348. Mr. Mellor, the inspector at Manchester, exhibited to the Commission a book containing numerous entries of fraudulent cases where he had no power to interfere, adding that all the inspector could do was to see that the weights and measures were correct, and then his powers were exhausted.

An attempt has recently been made to get over this deficiency in our weights and measures law by prosecuting an offender for fraudulently weighing under the charge of obtaining money by false pretences, the offender being found guilty by a jury and sentenced to two months imprisonment by the bench of magistrates. In this case, however deserving the offence may have been of punishment, the law appears to have been somewhat strained, as such petty cheating in the *quantity* of the article sold hardly comes up to the offence of obtaining money under false pretences.

Appendix VI., p. 296.

It is obviously expedient that the weights and measures law should deal directly with such fraudulent offenders, and that the provisions in the Irish Weights and Measures Act for prevention of frauds should be extended to Great Britain, with such additional enactments as may be of public advantage.

According to Mr. Skinner's suggestion, already referred to, every information should distinctly state the offence to be committed either "with fraudulent intent" or "with "no intent to defraud;" an offender convicted of fraudulent intent being liable to a greater fine, and in cases of a second conviction to imprisonment, not exceeding two months, as the justices may determine.

Second Report, App. II., p. 85.

In France, it has been shown that the punishment either for false weights and measures, or for fraudulent dealings with respect to the quantity sold, is imprisonment for not less than three months or more than one year, and to a fine not less than 2*l.* The tribunal may likewise order the sentence to be publicly posted up.

For a second similar conviction within five years, the penalties are liable to be doubled.

But these penalties are materially modified, where there are extenuating circumstances.

Appendix XII., Part I p. 386.

With respect to the publicly posting up of sentences upon fraudulent offenders, as part of the punishment to be recognised by law, it has been shown that in the local Acts for the metropolitan parishes, there is a provision requiring that the names, addresses, and offences of persons convicted a second time of using false or defective weights and measures shall be published in any county newspaper or newspapers.

The further evidence of inspectors upon this point is as follows:—

Q. 1262. Mr. Ledger thinks that with fraudulent men there could be no harm in such a regulation. They generally do get advertised, that is to say, they are reported, and a good deal is thought of it.

Q. 1462, &c. Mr. Morrison is opposed to such a regulation. He thinks if they pay a heavy penalty, it is quite sufficient. It would be ruination to many small tradesmen. He knows that tradespeople dread publication in the newspapers more than anything that the justices can do. But he admits that it would be a great protection to the public against frauds.

Q. 1809. Mr. Daws, the inspector for Newington district, thinks it would be beneficial to punish severely proved cases of fraud, and to give every publicity by advertising them in the local papers. That would be more beneficial than anything else. It is not the few pounds fine that fraudulent tradesmen mind, but they do not like their names published in the papers.

Q. 2036. Mr. Strugnell thinks that publicly advertising fraudulent offenders would be a very good plan.

Q. 2357, &c. Mr. Mellor says that publicity is in a great many cases a more formidable penalty than the fine itself, and it is greatly feared. No doubt it injures a man's trade more. He would have all cases of fraud or culpable negligence published and republished in all the local papers. They are now generally published by the reporters. But he would go further than that. He is of the same opinion as one of the stipendiary magistrates at Manchester, who would strongly recommend that, in the case of a man clearly convicted of fraud two or three times, there should be a power of inflicting imprisonment on another conviction, as well as a fine, or both.

Q. 2804. Mr. Roberts, a county magistrate of South Wales, considers the grievance of a fraudulent trader so great, that he would hardly object to any stringent measure to put a stop to it. But he thinks the French system of placarding the convicted tradesman's name is objectionable, for if a fine should by accident be unjustly inflicted, it would be bearable, but an unjust exposure by placard would be ruin.

Q. 2731.

Q. 2977. Mr. J. F. Pownall, a Middlesex magistrate, refers also to the question of stating, in parliamentary returns of convictions under the weights and measures laws, the names of persons convicted, and he doubts the propriety of publishing all the names of tradesmen and exhibiting them as offenders, as it might be an unfair imputation upon tradesmen convicted really of slight carelessness only. He thinks a general return of convictions should be a classified statement and not a name return.

In reviewing this subject, it should be particularly observed that fraudulent practices by tradesmen are generally admitted to be exceptional. Mr. Mellor says, he believes that, as a rule, the weights, measures, and balances used in shops are correct, and the shopkeepers endeavour to keep them so, and that fraudulent cases are the exception. Several inspectors have informed me that on an average fraudulent cases are perhaps 10 per cent. of the whole number of convictions. Mr. J. F. Pownall puts the average rate at about 8 per cent., according to his own experience, the great number of cases being of negligence more or less gross. Sir T. Tilson, whose experience has been acquired in an exceptionally poor neighbourhood by the water side, where the proportion of fraudulent cases is probably very much larger than in other districts, thinks they amount to perhaps one-third but certainly one fourth of the whole number of convictions.

Q. 2406.

Q. 2979.

Q. 3046.

Upon the whole it appears to me that as there exists, at the present time, a very general practice to publish in the cheap local newspapers, everywhere so largely circulated, detailed reports of the convictions under the weights and measures laws, no further recommendation of the Commission is called for, except that such publication, so far as it relates to the names, places of abode, offences, and sentences of all persons found guilty of fraud, or culpable negligence, be directly authorised and required by legal enactment.

22. *Inspection of Weights, &c. used by the Post Office, Customs, and Excise Departments.*

22. Inspection of weights, &c. of Post Office, Customs, and Excise Departments.

Very full information upon this subject, which has been furnished from the several departments, has been laid before the Commission in Appendix VIII.

It may be observed that in the communications to these departments, a distinction is drawn between the scales and weights used for Post Office services, which may perhaps be subject to inspection by the local inspectors of weights and measures, under the provisions of the existing law, and the scales, weights, and measures used by Customs and Excise officers, for which no such provision can be found.

With respect to the Post Office department, it appears that out of 12,896 post offices in the United Kingdom at the present time, 4,259, or about one-third of the whole number, are supplied with scales and weights, specially constructed for weighing letters only and practically useless for trade purposes. These are provided and kept in repair at the cost of the department. They are furnished to the head offices and to those with a certain amount of post office business, as well as to every money order office. The total number of scales so supplied is 9,436, and of weights, 107,120. With the addition of metric weights for post office services, this number of weights would probably be doubled, whilst no corresponding increase in the number of scales would be required.

The principle upon which it may be desirable that the functions of the local inspectors of weights and measures in relation to post office scales and weights should now be defined by statute and carried out in official instructions from the Board of Trade, is well stated by the Postmaster General, in the letter of 8th December 1869; that such inspection is to be considered merely in the light of one department of the Government aiding another, and that an

Appendix XII.—*continued.*

authoritative inspection of these scales and weights is not to be considered as an admission of the right of the inspectors under the general terms of the Act to inspect them for the purpose of applying any penal consequences to Postal officers, but only vith a view to the due verification of these instruments. Lord Hartington points out the obvious distinction that exists between the scales and weights used merely for post office services and those used for trade purposes, and that public offices cannot have the same motives of private gain for using incorrect scales and weights that may actuate traders.

It is obviously expedient that any doubt which may now exist as to the powers of the local inspectors to interfere with post office scales and weights under the present law may be removed, and it may be suggested that a legislative provision should carry out the principle above stated, so far as relates to the special scales and weights provided by the Post Office department. The practice found to work well at Manchester may thus be generally adopted, and the local inspectors act as a useful check upon the departmental inspecting officers in maintaining the due accuracy of the post office scales and weights. But there ought to be such a marked distinction between the special post office scales and weights, and all others, that no doubt could exist between them, and for this object the former description may be required to bear a special official stamp.

As to those post offices not supplied by the department with special scales and weights, it will be the duty of the local inspectors of weights and measures to inspect their scales and weights of ordinary construction, used both for trade dealings and for post office purposes, in the same way as they will inspect all other scales and weights of ordinary construction used for trading purposes by any post office keeper, or other person.

The information furnished by the Customs and Excise departments relating to the scales, weights, and measures used by their officers is very full and satisfactory, the Commission will probably concur in the opinion expressed by the authorities of both departments that no alteration of either the law or practice appears to be called for with the view of giving new powers to the local inspectors of weights and measures to interfere with them.

It appears that the scales, weights, and measures used by both Customs and Excise officers in the discharge of their duties are now for the most part provided under special enactments by the parties whose goods and premises are subject to examination by these officers. These are, therefore, liable to stamping, inspection, &c. under the general provisions of the law. The additional precaution is taken by supervisors of excise to test the accuracy of such scales, weights, and measures by means of standards provided for that purpose.

Such special enactments which are applicable to Customs duties are fully set forth in the letter from the Customs department. But attention may be drawn to the following provisions of law which regulate the powers of officers of Excise in relation to the weights, measures, and balances of makers of and dealers in exciseable commodities, as conferring upon these officers analogous powers to those of inspectors of weights and measures:—

The Act 10 Geo. 3. c. 44. recites that, "Whereas many "traders subject to the survey of the officers of Excise and "Inland duties respectively, are severally required by the "laws concerning the duties under the management of the "Commissioners of Excise, to keep just and sufficient "scales and weights at the place or places where they "carry on their respective trades, to be used in taking the "account of the stock of such traders," and enacts that such traders using false, unjust, or insufficient weights and scales in weighing his stock, with intent to fraud in the duties, shall forfeit 100*l.* for every such offence, half to go to the informer.

A similar recital is contained in s. 8 of the Excise Act, 26 Geo. 3. c. 77., and it is added that it frequently happens that Excise officers have been hindered in their duties of taking account of the stock of such traders, although the scales and weights have been of themselves just and sufficient. It is then enacted that any such trader so hindering any Excise officer or using any act or contrivance to deceive any officer in taking account of the stock, shall forfeit 100*l.* for every such offence.

A further provision is contained, s. 28 of the Excise Act, 18 & 19 Vict. c. 94. Every distiller and maltster is to provide and keep a correct bushel measure, and just and true scales and weights, properly adapted for weighing malt in sacks, and to permit their use to officers of Excise in the discharge of their duties; and he, as well as his servants and workmen, are to aid and assist, under penalty of 100*l.* for every such offence. In the event of any such measure, scale, or weight being false or unjust, or any fraud being practised by him in their use, such distiller and maltster is to forfeit 200*l.* for every such offence; and all false, unjust, or insufficient measures, scales, and weights, shall be forfeited and seized and taken away by an officer of Excise.

There appears to be also a considerable number of scales, weights, and measures belonging to the Customs and Excise departments which, like the Post Office scales and weights, are tested from time to time by the departmental inspecting officers with their own standards, and this inspection is considered by the authorities of each department to be practically efficacious. The Commission will probably concur in the opinion that no extraneous interference with the departmental regulations is called for in this respect. But considering that these scales, weights, and measures used by the several public officers, regulate charges made upon the public, who may therefore justly require that they may bear upon them sufficient evidence of having been duly verified, in order to give confidence in their accuracy, it may be suggested for consideration whether it may not be expedient to declare by law:—

1. That all weights and measures used by the Revenue Departments of Customs, Excise, and Post Office for regulating charges upon the public, shall be of legal denominations, according to the official standards of the Board of Trade, and shall be duly verified and stamped from time to time either by the local verifiers of weights and measures, or by departmental officers appointed by the authorities of the several departments, for the discharge of this duty.

2. That for such purposes, the departmental officers of verification shall be furnished by the authorities of the Customs, Excise, and Post Office Departments, with such copies of the standards as they may require, to be duly verified from time to time at the Standards Department of the Board of Trade, within the periods prescribed by law for the reverification of copies of the standards provided for the local verifiers of weights and measures.

3. That upon the appointment of such officers of verification being notified to the Board of Trade by the departmental authorities, such officers shall be furnished by the Warden of the Standards with the requisite verification stamps, and with copies of the official instructions for the construction, verification, and inspection of weights, measures, and balances, for their information and guidance.

Standard hydrometers, alcohol meters, &c.

The only further point to which the attention of the Commission may be directed, is the verification from time to time of the other testing instruments used by the Customs and Excise Departments, viz., the hydrometers, saccharometers, and gauging instruments. It may be a matter deserving of consideration how far material standards of all such instruments should be established in this country, as is now the case in Prussia and the United States of North America. But the subject is a large and important one. A thermometer is a necessary part of every hydrometer and saccharometer, and the question of a standard thermometer is consequently involved in the whole subject which would have to be considered.

In the meuntime and apart from the question of establishing such standards, the regulation of all these instruments used by the several officers may be properly left to the authorities of each department, in accordance with their expressed opinion; it is stated that due care is taken that they are kept in efficient condition, and there appears no adequate ground for recommending any alteration in the existing practice. Specimens of Sikes's hydrometer and Bates's saccharometer have already been deposited in the Standards Department, and exhibited to the Commission. It may also be desirable that steps be taken for obtaining similar specimens of all the gauging instruments used by the Customs and Excise officers.

23. *Information in the Annual Reports of the Inspector at Manchester.*

23. Information in the annual reports of the inspector at Manchester.

Before concluding this portion of the subject, the attention of the Commission may be drawn to the information relating to the working of the existing system of inspection in the city of Manchester, contained in the series of printed annual reports of Mr. Mellor, from 1844 to 1869, forwarded by him to the Standards Department, and laid before the Commission.

It appears from a table contained in the last report for 1868–9, that during the whole period from 1844, the annual number of shops visited by the inspector have progressively increased from 7,833 to 32,047, whilst the convictions have decreased from 287 to 272, and the per-centage of convictions on the shops visited from 3·661 to 0·287.

Appendix XII.—*continued.*

Nearly all the convictions were of persons dealing with the ordinary necessaries of life, and the poor were consequently the chief sufferers from the use of the false or defective weights, measures, or balances.

This table is conclusive evidence of the advantage arising to the public from a vigilant inspection of weights and measures acting as a *preventive* of such fraudulent and negligent practices.

The table contains several other statistical tables relating to the inspection of weights, including a classified table of 56 trades, with the number of shops kept by each class, amounting in the whole to 32,047 shops, in the city of Manchester, with a total population of 338,722 persons, and with 61,487 houses, within the municipal limits, according to the census return of 1861.

The total receipts of verification during these 25 years for stamping, adjusting, &c., amounted to 14,750*l.*, and the total expenditure to 15,520*l.* For the out-door inspection, the receipts from fines, produce of forfeited goods, &c., were 7,939*l.*, against an expenditure of 10,064*l.*

It is thus shown that a well-conducted system of verification and inspection of weights and measures can be carried out so as to be nearly self-supporting, and entailing merely a nominal cost.

24. Other duties performed by inspectors of weights and measures.

24. *Other Duties connected with or analogous to the Inspection of Weights and Measures performed by the Inspectors.*

These will be considered under the following heads:—
Sale and adulteration of bread.
Sale and adulteration of hay and straw.
Weighing of goods and carts in markets.
Sale and delivery of coals.
Testing of petroleum kept for sale.

1. *Sale and Adulteration of Bread.*

Sale and adulteration of bread.

One of the duties performed by local inspectors of weights and measures, in addition to such inspection, arises in carrying out the laws relating to the sale and adulteration of bread.

So far as regards the weights and quality of bread, its sale is regulated by special Acts applying respectively to the Metropolitan district, to Great Britain generally, and to Ireland.

In the Metropolitan district.

The sale of bread is regulated in the Metropolitan district by the local Act 3 Geo. 4. c. 106, passed in 1822. This Act is entitled "An Act to repeal the Acts now in force "relating to bread to be sold in the city of London and "liberties thereof, and within the weekly bills of mortality, "and ten miles of the Royal Exchange, and to provide "other regulations for the making and sale of bread, and "preventing the adulteration of meal, flour, and bread, "within the limits aforesaid." It recites and repeals previous Acts regulating the weight of bread within the district, and providing against its adulteration.

As to the *quality* of bread for sale, the several provisions are contained in ss. 2 and 10–15. The regulations for the *weight* and *size* of bread for sale are contained in ss. 3–9. All the provisions are similar to those contained in the Act for Great Britain generally, to which reference will be made more in detail.

In Great Britain.

With the exception of the Metropolitan district, the sale of bread is regulated throughout Great Britain by the public general Act 6 & 7 Will. 4. c. 37. (1836). This is an Act to repeal the several Acts then in force relating to bread to be sold out of the city of London and liberties thereof, and beyond the weekly bills of mortality, and ten miles of the Royal Exchange; and to provide other regulations for the making and sale of bread, and for preventing the adulteration of meal, flour, and bread, beyond the limits aforesaid.

In several counties this law has been carried out by the local inspectors of weights and measures, particularly in Middlesex, Dorset, Bucks, and Berks. In boroughs, so far as I can ascertain, the Act is a dead letter, and no single instance of its execution by *borough* officers is known. In fact, the particulars of a notorious case are recorded in the Standards Department, of an inspector of weights and measures in a borough, stating his inability to interfere with a baker, who was known to give very short weight, because he was a member of the town council, under whose authority the inspector was placed by law.

Ss. 2, and 8–11 of the Act 6 & 7 Will. 4. c. 37. specify the articles of which bread may be made and sold, and the mixture and ingredients to be used in the making of bread for sale, and provide against the adulteration of corn, meal, and flour, ground, dressed, bolted, or manufactured for sale.

Ss. 3–7 provide for the weight and size by which bread may be sold.

By s. 3, bread may be sold of any weight or size, as the bakers or sellers of bread may think fit.

By s. 4, bread is to be sold by weight and in no other manner. With the proviso, that nothing in the Act is to be construed to prevent the sale of bread usually sold under the denomination of French or fancy bread or rolls, without previously weighing the same.

By s. 5, bakers are to use avoirdupois weight, according to the standards in the Exchequer (now Board of Trade), and the several gradations of the same.

By s. 6, bakers are to provide in their shops proper weights and scales, in order that bread may be weighed in presence of purchasers except as provided in s. 4. Any baker having or using incorrect or false beams or scales, or any false weight not being of the weight it purports to be according to the standard in the Exchequer, shall be liable to a penalty not exceeding 5*l.*

S. 7 enacts that bakers and sellers of bread delivering bread by cart or other carriage, are to be provided with and to constantly carry in such cart or other carriage a correct beam and scales with proper weights in order to weigh bread in presence of the purchaser.

With reference to the provisions in s. 4, relating to the sale of fancy bread, it may be here stated that this proviso has occasioned some difficulty in adjudications by local magistrates, it having been doubtful whether it includes what is known as "cottage" bread. By a recent decision (July 1869) of the Court of Queen's Bench, the Lord Chief Justice and Mr. Justice Lush were of opinion "cottage" bread was not "fancy bread" within the meaning of this Act. Mr. Justice Hannen was however of a contrary opinion.

S. 7 is practically found to be generally inoperative; but bakers are occasionally convicted for not carrying scales and weights in their carts and other carriages when delivering bread. An opinion has been expressed by an experienced metropolitan inspector of weights and measures, that this clause imposes an unnecessary burden upon bakers, and that it would be quite sufficient to compel bakers to weigh bread, when sold in their shops, if required by a purchaser, without the intervention of an inspector to see whether he carries weights and scales. At the present time few bakers carry scales and weights in their carts, and perhaps not one in his hand-barrow, which is more commonly used by bakers in delivering bread.

It should be noticed that whilst the General Act of 1836 requires all carriages with bread for delivery to have weights and scales, the Metropolitan Act of 1822 requires weights and scales in such carriages only as are drawn by a horse, mule, or ass.

The provisions of the Act 6 & 7 Will. 4. c. 37, which relate to the *quality* of bread sold, and the punishment of persons who adulterate bread, are seldom put into force by the local inspectors of weights and measures. The inspector for the western division of the county of Middlesex has, however, obtained one or two convictions against bakers having adulterating ingredients on their premises. This portion of the Act may easily be carried out by the local verifiers to be appointed throughout the country, and with advantage to the public, who really under the present law appear to have less protection against adulteration of bread than they possessed under the ancient system of assize.

One of the difficulties in putting the adulteration clauses of the Bread Act into force has, perhaps, been the want of technical knowledge by the local officers, but this difficulty may be met by the appointment of duly qualified verifiers of weights and measures, whose qualifications should be tested in order to ascertain that they possess the technical knowledge requisite for the performance of all duties imposed upon them.

Although the Act 6 & 7 Will. 4. c. 37. does not *specially* authorise inspectors of weights and measures to carry out its provisions, yet it has been considered by the local authorities that as s. 11 empowers magistrates of the peace, or officers authorised by warrant under the seal of magistrates, to inspect bakers' premises, that authority is sufficient for such inspectors to act under this law, as they are appointed by the warrant of the magistrates.

S. 15 enacts that no person who shall follow, or be concerned in the business of a miller, mealman, or baker, shall be capable of acting as a justice of the peace under this Act, or putting into execution any of the powers of this Act, under a penalty of 100*l.*

Appendix XII.—*continued.*

Ireland.

In Ireland the sale of bread is regulated by the public general Act 1 & 2 Vict. c. 28. (1838). This is an Act to repeal the several Acts then in force relating to bread to be sold in Ireland, and to provide other regulations for the making and sale of bread.

S. 1 refers to the Act 6 & 7 Will. 4. c. 37., and recites that the regulations, provisions, and penalties therein contained should be substituted for those contained in the several Acts hitherto in force in Ireland.

This Act, like the 6 & 7 Will. 4. c. 37., provides both for the quality of the bread sold, and the weight and size by which bread is to be sold, and the provisions are generally similar to those of 6 & 7 Will. 4. c. 37.

But in the Act relating to Ireland there is no provision by which bakers are compelled to carry scales and weights in their carts and carriages when delivering bread.

By s. 10, magistrates or justices of the peace within their respective jurisdictions, or any peace officer or parish constable authorised by warrant under the hand and seal of any such justice, may search a baker's premises for adulterating articles. There is no information in the Standards Department as to whether this law is put into force in Ireland.

lteration ood, &c. ls. l No. 161 .868, and . 78 of 9.

With reference to the adulteration of bread, two Bills were brought into the House of Commons in 1868 and 1869, respectively, to "amend the Act for preventing the "adulteration of articles of food and drink, 1860," and to extend its provisions to drugs. A clause was contained in these Bills providing that the inspector of nuisances, the inspector of *weights and measures*, or the inspector of markets, as the local authorities should think fit, were to procure and submit articles of food suspected to be adulterated to the analysts appointed under the Act. Neither of these Bills were, however, carried through the House of Commons.

It appears desirable to repeal all these separate Bread Acts, and to incorporate in the proposed Weights and Measures Consolidation Act, the several provisions relating to the weights and scales used by bakers, and the weighing of bread, with the exception of that compelling the bakers to carry weights and scales when delivering bread. The duties relating to the verification of these weights and scales, and their inspection, including that of the bread sold, should be exercised by the verifiers and inspectors of weights and measures. The question of the adulteration of bread may be dealt with in a separate bill relating generally to the adulteration of food.

size of ead.

It may be interesting to refer briefly to the assize of bread, or regulation of the price to be paid for a given weight and quality of bread, in proportion to the price of corn, which was for so long a period considered as a matter of importance to be enforced by law in this country.

siza Panis.

The earliest record of the assize of bread is contained in the Assiza Panis of 51 Henry 1. c. 18., ordained in 1266. Such assize stated "to have been made in the time of our "progenitors," was to be holden throughout all England.

This statute was repealed in 1709 by 8 Anne, c. 18, an Act to regulate the price and assize of bread, which recites that "the said statute is expressed in terms so obscure and "impracticable in these times, that many doubts and diffi-"culties have arisen and daily do arise in the construction "thereof, whereby little or no observance hath in many "places been made, either of the due assize or reasonable "price of bread, and covetous and evil disposed persons "taking advantage of the same, have for their own gain "and lucre deceived and oppressed Her Majesty's sub-"jects, and more especially the poorer sort of people." Provisions were contained in this Act directing the mayor and corporation of the city of London, and the mayor, bailiffs, aldermen, or chief magistrates of other cities, towns, corporations, or boroughs, or two or more justices of the peace, where there should be no mayor, &c., to ascertain and appoint within their respective jurisdictions, the assize and weight of all sorts of bread from time to time, "in "averdupois and not troy weight," according to a table annexed to the Act.

Various Acts were subsequently passed relating to the assize of bread, but the several Acts for regulating the sale of bread within the Metropolitan district were repealed by the before-mentioned local Act 3 Geo. 4. c. 106, which contains no new enactments for the assize of bread in the Metropolitan district, and the public general Act 6 & 7 Will. 4. c. 37. altogether repealed all Acts then in force relating to the assize and price of bread beyond the Metropolitan district, and enacted in s. 1 that there shall no longer be any assize of bread beyond such limits, or any regulation respecting the price thereof.

2. *Sale and Adulteration of Hay and Straw.*

Sale and adulteration of hay and straw.

Another duty occasionally exercised by the metropolitan inspectors of weights and measures, under the directions of the local authorities, though such duty is not specially imposed upon them by Act of Parliament, is that of carrying out the provisions of the Acts relating to the sale of hay and straw.

There are three public general Acts of Parliament now in force which regulate the hay and straw trade. But the provisions of these Acts extend only to the cities of London and Westminster, or within 30 miles thereof.

By s. 2 of the Act 36 Geo. 3. c. 88. no hay or straw is to be sold within the limits above mentioned except in trusses. 36 Geo. 3. c. 88.

By s. 3 every truss of new hay sold between the 1st day of June and last day of August in any year, being new hay of the summer's growth of that year, is to contain the full weight of 60 pounds, and every truss of old hay of any former year's growth is to weigh 56 pounds. Every truss or bundle of straw is to weigh 36 pounds, and every load of hay or straw is to contain 36 bundles or trusses. But no person is to be convicted for selling any bundle or truss of hay or straw deficient in weight where a load or any other less quantity is sold at the same time to the same person, if the number of trusses or bundles so sold shall amount on the whole to the legal average weight.

Ss. 4 and 5 impose penalties for selling new for old hay, and for selling any hay or straw of mixed quality, or the inside of the truss or bundle of which shall be of inferior goodness from what the outside shall appear to be.

S. 13 directs that scales and weights or engines for the weighing hay and straw are to be kept by the churchwardens and overseers of such parishes within the limits aforesaid at the clerk of the market's office, as also at the watch-house of each and every parish within the limits of this Act, and the clerk of the market and the constable or headborough of the parish are appointed "hay weighers."

Buyers of hay and straw may cause the same to be weighed in their presence, and if the buyer or seller shall be dissatisfied with such weighing, they are to apply to the local hay weigher.

S. 21 enacts that if any person shall knowingly and fraudulently mix any water, sand, earth, or any other matter or thing in any bundle or truss of hay, with an intent to increase the weight thereof, they shall be liable to a penalty of 10*s.* for every such truss.

By s. 30 all penalties and forfeitures imposed by this Act are to go to the person or persons who shall prosecute to conviction any offender against this Act.

The Act 4 Will. 4. c. 21. (1834) repeals the provisions of the Act 36 Geo. 3. c. 88, so far as regards any market through which there does not exist by law any public right of way for carts and carriages. 4 Will. 4 c. 21.

The third Act (19 & 20 Vict. c. 114.) relating to the sale of hay and straw within 30 miles of London, recites that whereas many frauds and abuses are committed in the city of London and Westminster and other places in the vicinity thereof, in binding and false packing hay and straw, and that the laws are insufficient for preventing the same, it is therefore enacted,— 19 & 20 Vict. c. 114.

By s. 1, that no water, sand, earth, or other matter or thing be mixed with any truss of hay or straw to fraudulently increase its weight; and by s. 3, that where any hay or straw is sold in any public hay market, the clerk of the market is upon complaint to weigh and examine the hay or straw, and if found deficient, to summon the offender.

No provision exists in the laws relating to the sale of hay and straw, for the verification or inspection of the weights and scales directed to be kept and used by the clerks of the markets, or head constables, who are appointed hay weighers.

A conviction has been recently obtained (January 22, 1870) by Mr. Gregg, inspector of weights and measures for Western Middlesex, against a general dealer for selling a quantity of hay deficient in weight. There were six trusses sold, each truss being on an average about 5 lbs. deficient, the total deficiency being 31 lbs.

The purchaser having weighed one truss of the hay and found it deficient, sent for the inspector of weights and measures, who afterwards came and weighed the hay, and found all the trusses deficient. The magistrates of the Brentford petty sessions decided that the defendant had sold a quantity of hay deficient in weight; that this summons was taken out under an old Act of Parliament, but it was a wholesome law, and should be put in force to stop such dishonest trading; and they fined the defendant 20*s.*

Appendix XII.—*continued.*

In Ireland.

In Ireland, the weighing of hay and straw for sale is to some extent regulated by ss. 12 and 14 of the Weights and Measures (Ireland) Act, 1860.

S. 12 directs that every contract, bargain, sale, or dealing for any quantity of corn, hay, straw, &c. shall be made by one of the denominations of imperial weight; and part 6 of s. 14, imposes a penalty not exceeding 5*l.* upon any person who shall knowingly weigh or cause to be weighed, contrary to the provisions of this Act, or act or assist in committing or connive at any fraud respecting the weighing or the weight or measure of any such article named in part 2 of s. 12.

Weighing of goods and carts in markets.

3. *Weighing of Goods and Carts in Markets.*

As the Hay and Straw Acts before mentioned extend only to the Metropolitan district, it has been customary to insert in local Acts for incorporating markets, a clause to regulate the sale of goods. The Markets and Fairs Act, 1847, 10 Vict. c. 14., for consolidating in one Act provisions usually contained in Acts for constructing and regulating markets, and applicable to the United Kingdom, contains the following enactments relating to the weighing of goods or carts in markets.

By s. 21, the undertakers of the market are to provide proper weighing houses or places for weighing or measuring the commodities sold in the market or fair, and are to keep therein proper weights, scales, and measures according to the standard weights and measures for the time being, and are to appoint proper persons to attend to the weighing and measuring.

By s. 22, every person selling or offering for sale any articles in the market or fair shall weigh the same, if requested to do so by the buyer.

S. 23 imposes a penalty on the persons appointed to weigh, if they refuse to weigh when required.

By s. 24, the undertakers of the market or fair are to provide proper machines and sufficient buildings for weighing carts laden with goods; and they are to appoint a person to afford the use of such machine to the public.

By s. 25, the driver of every such cart shall at the request of the buyer or seller take such cart, with or without the loading thereof, to the nearest of the said weighing machines, and permit the same to be weighed.

Ss. 27 and 28 impose penalties on drivers of carts, or buyers and sellers of goods within the market or fair, committing frauds in weighing carts, or the loading thereof.

By s. 29, the person appointed to keep any weighing machine provided in pursuance of this Act is liable to a penalty for the following offences:—

1. If he wilfully neglect to weigh any cart with or without its loading.
2. If he do not fairly weigh every such cart, &c.
3. If he do not deliver to any person interested in such weighing, a ticket specifying the true weight of such cart, &c.
4. If he give a false ticket to the driver of any such cart.
5. If he knowingly assist in or connive at any fraud in the weighing of any cart or the loading thereof.

It will be seen by reference to Appendix I., p. 7, that clerks of the market were originally directed by the statute 16 Richard 2. c. 3. in 1392, to have their measures and weights according to the standards of the Exchequer.

Q. 2674.

Mr. Mellor in his evidence mentions analogous powers of inspection in markets conferred by the Manchester local Act upon the corporation, and exercised by the inspectors of weights and measures.

It is obviously expedient to place the inspection of weights and measures and dealings with them, under one uniform system throughout the kingdom, and that the duties should be exercised by one set of officers only, the local inspectors of weights and measures. The powers now conferred upon clerks of markets and hay weighers are essentially those of inspectors of weights and measures, but they are appointed by and responsible to the proprietors of the markets only, and not to any of the local authorities, except in some few instances, in which case only their weights and measures are verified with the official standards. These powers of clerks of markets and hay weighers should be repealed, and the duties of inspectors of weights and measures be extended by law to markets and fairs, so far as relates to all transactions connected with weights and measures used there. For this purpose, the requisite clauses should be embodied in the Weights and Measures Consolidation Bill.

4. *Sale and delivery of Coals.*

Sale and delivery of coals.

The sale of coals and the weights and scales to be used by coal dealers are regulated more particularly by s. 9 of the Weights and Measures Act, 5 & 6 Will. 4. c. 63. and by the local Acts 1 & 2 Will. 4. c. 76. and 1 & 2 Vict. c. 101.

S. 63 of 5 & 6 Will. 4. c. 63. declares that all coals are to be sold by *weight* only. This Act is applicable to the United Kingdom.

Metropolis Coal Acts, Local Act, 1 & 2 Will. 4. c. 76.

The Act of 1 & 2 Will. 4. c. 76. is entitled "An Act for "regulating the vend and delivery of coals in the cities of "London and Westminster, and certain parts of the "counties of Middlesex, Surrey, Kent, Essex, Hertford-"shire, Buckinghamshire, and Berkshire." Its provisions, which relate especially to the weights and scales used in the coal trade, and the mode of weighing, do not appear to be extended by any subsequent enactment to other parts of the United Kingdom. It would follow, therefore, that beyond the limits named in this Act, dealers in coals are liable only to the provisions of the ordinary weights and measures laws.

The carrying out of the provisions of this local Act, so far as they relate to the weights and scales used in the sale of coals, is not specially declared to be the duty of inspectors of weights and measures. It has, however, been found convenient by the local authorities occasionally to entrust the execution of these Acts to such inspectors. It will be seen upon reference to the following provisions of this Act, that there is no enactment authorising inspectors of weights and measures to interfere with the weights and scales used by coal dealers, or the weight of coals in course of delivery, except the weights and scales upon the premises of the dealers in coals. But persons retailing coals in the public streets come within the provisions of s. 3 of the Weights and Measures Act, 22 & 23 Vict. c. 56.

The provisions of the local Act 1 & 2 Will. 4. c. 76. which refer to the local inspection of weights and scales used in the coal trade, are ss. 43 and 48–59.

By s. 43 it is enacted that all coals shall be sold by weight within the limits aforesaid.

S. 48 enacts that all coals are to be delivered in sacks within the distance of 25 miles of the Post Office, each sack containing either 112 lbs. or 224 lbs. net. But coals delivered by gang labour may be conveyed in sacks containing any weight.

But by s. 49, coals may be delivered in bulk in any quantity exceeding 560 lbs., provided the weight or the cart or other carriage as well as of the coals therein contained shall be previously ascertained by a weighing machine fixed for that purpose on the wharf or place where the coals are sold, and the seller's ticket is to state such weights. Any seller or dealer in coals delivering coals in bulk and not having a weighing machine, &c. is to forfeit a sum not exceeding 50*l.*

By s. 50, the carman is to weigh such carriage and coals if required by the purchaser.

S. 51 imposes a penalty not exceeding 50*l.* upon any seller of coals delivering coals in bulk deficient in weight.

By s. 52, the carman or driver of any cart or other carriage, laden with coals for sale, or to be delivered to purchasers, is to place in or under his cart a perfect weighing machine, "marked at Guildhall, London, by the proper "officer there, for which the sum of two shillings and "sixpence shall be paid, and no more, (which machine "shall be of the form, size, and dimensions of the machine "approved by the Lord High Treasurer or any three or "more of the Lords Commissioners of His Majesty's "Treasury, and deposited at the office of the hall keeper "of the city of London, to which any person shall have "access." Carts conveying coals in *bulk* are not obliged to carry such weighing machine.

There is no mention in the clause of *weights* to be used with the weighing machine.

S. 53 enacts that the machine may be altered if at any time it appears to the mayor, aldermen, and commons, in council assembled, that a weighing machine upon a more convenient principle or mode of construction may be made. And they may, with the consent of the Treasury, cause a new machine to be made and deposited with the hall keeper, and give notice thereof in the "London Gazette."

Attention may be drawn to the fact that upon inquiry being recently made by an officer of the Standards Department respecting the standard coal weighing machine referred to in s. 52, he was informed by the keeper of Guildhall, and by the stamper of weights and measures at Guildhall, that they could give no information as to such a machine, and were not aware of such a standard being in use.

Appendix XII.—*continued.*

By s. 54, the carman or driver of any cart in which coals are carried in sacks for delivery, is directed to weigh any one or more of the sacks contained in such cart, when required to do so by the purchaser, or his or her servant, or other person or persons acting on behalf of such purchaser.

S. 55 inflicts a penalty, not exceeding 20*l.*, upon any carman neglecting or refusing to weigh any of the sacks contained in his cart, when required to do so by the purchaser or his servant; or if the carman drive away or hinder or obstruct the weighing of any sack he is liable to the same penalty.

S. 56 provides that if the purchaser of coals or his servant, or any other person acting by or under the authority of such purchaser, who shall require any sack of coals to be weighed, shall find the coals therein to be deficient in weight, and shall signify to the carman his desire to have all the coals weighed or re-weighed in the presence of some constable, police officer, or other indifferent and credible person, the carman is required to remain at or before the premises of the purchaser, with such coals, until they are weighed.

If the purchaser is desirous of having the coals re-weighed, he is required by s. 57 to procure the attendance of some constable, police officer, or other indifferent and credible person to be present at the weighing of such coals; and all the sacks, both with and without the coals therein, shall accordingly be weighed with the said machine by the carman. In case the purchaser or his agent or servant shall not attend, then the carman shall proceed with the weighing in their absence; and if the carman refuse or neglect to weigh such sacks, he shall be liable to a penalty not exceeding 5*l.*; and the constable, police officer, or any other person who may be present may weigh the said sacks.

S. 58 enacts that no quantity of coals less than 560 pounds is to be sold without being weighed.

S. 59 directs that a proper machine or proper scales and weights for weighing coals shall be kept at every watch-house or police station, or any other place which shall be appointed by two of Her Majesty's *justices* within the cities of London and Westminster, or within the distance of 25 miles from the General Post Office; and the same are to be provided and kept in repair by the overseers of the poor, out of the rate for the relief of the poor.

I have not been able, after inquiry, to learn that any proceedings have been brought before the county magistrates of Middlesex in relation to the Act 1 & 2 Will. 4. c. 76.

ocal Act . & 2 Vict. . 101.

The Local Act 1 & 2 Vict. c. 101. repeals s. 2 of the Act 1 & 2 Will. 4. c. 76. as follows:—It enacts (s. 3) that a ticket is to be delivered to the purchaser of all coals above 560 pounds in weight, according to the form given in the schedule annexed to this Act.

S. 5 also recites, "That no weighing machine shall be "deemed a perfect weighing machine within the meaning "of this Act unless proper weights shall be carried there-"with, and also that any other just balance, with an even "beam and legal weights, shall be deemed a perfect weigh-"ing machine within the meaning of the said Act, without "having been marked at Guildhall;" and if any carman or driver required to carry a weighing machine by the said Act and this Act shall have placed in, on, or under his cart or other carriage any beam, scales, or other weighing machines, or any weights, which shall be imperfect or improper for the purpose of denoting the weight of coals, then the carman or driver shall forfeit a penalty not exceeding 5*l.*, and the sellers of, or dealers in, or carriers of such coals shall forfeit a sum not exceeding 5*l.*

S. 5 of this Act repeals the penalty on preventing persons, other than the purchaser or his servant, from examining the weighing machine, or weighing the sacks of coals.

The Public Act 8 & 9 Vict. c. 101., and the Local Acts 14 & 15 Vict. c. 146., and 20 & 21 Vict. c. 89., continue and amend the previous Acts 1 & 2 Will. 4. c. 76., and 1 & 2 Vict. c. 102.; and contain provisions for the weighing of coals, for the assessment of the duty payable to the corporation of London, &c., but do not refer to the weights and scales used in the sale of coal.

It is suggested that the provisions of the Act 1 & 2 Will. 4. c. 76., and the Act 1 & 2 Vict. c. 101., relating to the weights and scales to be used in the sale of coal, and the mode of weighing, might conveniently be extended to the whole of the United Kingdom, by including the provisions contained in ss. 43, 48–51, 54–57, in the proposed Weights and Measures Consolidation Act.

With reference to ss. 52 and 53, providing for the deposit of a model coal weighing machine at Guildhall, to be approved by Her Majesty's Treasury, it is desirable that such enactment should be repealed, as the proposed official instructions to verifiers and inspectors of weights and measures would regulate the construction and stamping of all weights, measures, balances, and weighing machines. If any such standard coal weighing machine should be considered requisite, it should be deposited in the Standards Office.

S. 57, which enacts that no quantity of coal less than 560 lbs. weight be sold without being weighed, appears scarcely necessary.

S. 59, directing overseers of the poor (under a penalty of 10*l.*) to provide coal weighing machines at the watch-houses and police stations within their respective parishes, may also be repealed. There is no evidence that it has been practically carried out. This provision will be unnecessary if the other parts of this Act are efficiently carried out by the inspectors of weights and measures.

5. *Inspection of Petroleum kept for Sale.*

Inspection of petroleum kept for sale.

The Acts which relate to the sale and safe keeping of peteoleum, &c. are,—

25 & 26 Vict. c. 66. (1862), for the safe keeping of petroleum.

31 & 32 Vict. c. 56. (1868), to amend the Act of 1862.

S. 6 of the latter Act recites that it shall be lawful for any *inspector of weights and measures, or other person or persons appointed to inspect weights and measures under the Act 22 & 23 Vict. c. 56. and the Acts therein recited*, at all reasonable times to inspect and test all petroleum kept, offered, or exposed for sale; and enactments are contained in the two Acts regulating the mode in which the duties of inspection are to be performed and the description of testing apparatus to be used, as well as the local authorities under whom the inspection is to be placed.

An amending Bill for the safe keeping of petroleum and other substances of like nature was brought into the House of Commons last session (Bill 131, 1869) by Mr. Knatchbull-Hugessen and Mr. Secretary Bruce; but was withdrawn on the 22nd July 1869.

The testing of petroleum now forms a part of the duty of all the principal inspectors of weights and measures, and a large number of testing instruments have been supplied to the inspectors by the standard weight and measure makers in London. There is, however, a want of uniformity, not only in the construction of testing apparatus but in the mode of using it, which cause considerable discordances in the results of the testing, and corresponding difficulties and further dissatisfaction in carrying out the law, which obviously requires amendment. What is needed is a uniform testing apparatus, according to a proper standard, of which all the instruments used by the inspectors should also be verified copies. A uniform mode of using this testing apparatus should also be minutely laid down by authoritative instructions to the local officers. As, however, such an apparatus is not a weighing or measuring instrument, the Chairman of the Standards Commission has ruled that it is not within their province to make any recommendation respecting it; and attention is here drawn to the subject, merely as connected with the duties of the inspectors of weights and measures, and one urgently requiring to be dealt with by the Government.

25. *Mural or Public Standards of Measures of Length.*

25. Mural or public standards.

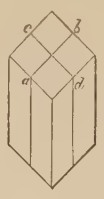
A legislative provision for the establishment of mural or public standards is very desirable, as recommended by the Standards Commission of 1841 (Report, § 77), to which reference has already been made. Mural standards have long since been placed by the Astronomer Royal on the wall outside the gate of the Royal Observatory, Greenwich, where they are accessible to the public. They are standards of lengths of 3 feet, 2 feet, 1 foot, 6 inches, 3 inches.

I am not aware of any other similar standards being publicly exhibited, except at Manchester. They were constructed under the direction of the local authorities there, at the suggestion of Mr. Mellor, the inspector of weights and measures, and under his superintendence. Strictly speaking they should not be called *mural* standards, as they are not placed upon the wall but on the pavement. The chief object of their construction was a much needed standard chain for the use of surveyors. The length of the chain, 66 feet, is laid down upon the pavement in front of the Town Hall of Manchester, and under cover, in a kind of vestibule. The lengths of 10, 50, 60, 66 feet in a straight and level line (including the intermediate spaces of 10, 40, 10, 6 feet), are marked in the following manner:—

The distances are defined upon five gun-metal blocks, let into the pavement, and level with it, being fixed with Portland cement.

Appendix XII.—*continued.*

Each block is a cube of 3 inches, formed of four separate rectangular pieces of gun metal $1\frac{1}{2}$ inch square, in horizontal section, and 3 inches high. These are soldered and riveted together to form the cube, thus,—



the line *a b* being in the direction of the length, and the point of intersection of the cross line *c d* defines the length.

By this mode of construction it was intended that however much the surface of the blocks and the pavement may be worn in course of time, so long as any part of the gun-metal block remains, the defining point may be seen, and will continue unaltered.

The place in the vestibule is judiciously selected, as there is not much traffic in that exact spot, although the Town Hall is of course much frequented. Thus, whilst there is not much wear of the gun-metal blocks, the comparison of measures is facilitated.

But the soldering of the blocks is disapproved by the Astronomer Royal, as unfit for standard measures of this description meant to be durable. With such a combination exposed to open air and wet, the result must be destructive to one of the metals. Either the solder perishes, leaving a trench, or the gun-metal on either side perishes, leaving a ridge.

It is obvious that for the accurate comparison of surveyors' chains of 66 feet, it is absolutely necessary to lay them down upon the pavement. A measure of 66 feet upon the wall would be nearly useless, from the difficulty of straightening the measure to be compared.

The public standard of 66 feet at Manchester is practically found to be very useful, and Mr. Mellor says that it is much used by surveyors.

Its length was based upon two brass scales of 10 feet each, procured from Messrs. De Grave and Co., and upon Mr. Mellor's copy of the standard yard. When completed, the lengths of the several measures were tested by some scientific persons by means of a microscope. No error was found, except in the length of 50 feet, and there it amounted to no more than $\frac{1}{128}$th of an inch.

Under the direction of the Standards Commission, the necessary steps have been taken for erecting mural standards of length and laying down public standards of surveyors' chains, both on the imperial and metric system, in the enclosure on the south side of the Victoria Tower at Westminster.

The mural standards of 10 feet and 6 feet are intended to be fixed in a vertical position against the south wall inside the gates.

Standards of the following imperial measures of length, marked in gun-metal upon an iron frame of the dimensions of about 4 feet by 2 feet, to be fixed to the wall on the right-hand side:—

Yard.
2 feet and 1 foot.
6 inches, 3 inches, and 1 inch.

And similar standards of the following metric measures of length on the left-hand side:—

Metre and half metre.
Decimetre and half decimetre.
Centimetre.

The mode in which the public standards of surveyors' chains are intended to be constructed and laid down may be seen from the following notes drawn up under the immediate direction of the Astronomer Royal.

Public Standards of Length, of the Chain, &c.

1. The two imperial standards of length to be laid down on one platform and the metric standard measure in another. The two platforms to be arranged end to end, with an eight foot space between their adjacent ends, where the inscribed stone will be placed.

2. The two imperial standard measures to be laid down parallel to each other and 12 inches apart. The zero blocks to be at that extremity of the platform which is furthest off the inscribed stone. The shorter standard (viz., the chain of 66 feet) to be on the side next the footpath.

3. The zero block for the metric standard measures in like manner to be at that extremity of the platform which is furthest from the inscribed stone, and the standard measure to be laid down along the middle of the platform.

4. The platforms to be constructed of Portland stone on a foundation of brickwork in mortar. They are to have the sides nearest the footpath vertical (for convenience of access to the standards and examining the divisions, &c.); the sides fronting to the Victoria Tower to be finished off with a neat ramp of turf. The upper surface of the platforms to be 12 inches above the surface of the footpath around them; the surface of the footpath is supposed to be at the present level of the grass plot. The surface of the platforms to be *flat*; horizontal transversely, and to follow the natural slope of the grass plot longitudinally. The ends of both platforms to be kept vertical, and the surface of the inscribed slab flush with the surface of the footpath. The foundation for the platforms to be carried down to such depth as may be found necessary for solidity, and if necessary, founded upon a bed of concrete, the concrete to be *not less* than 3 feet thick.

5. The zero blocks to be in one casting each of bronze, and let 3 inches deep into the Portland stone. The butt ends (which form the zero points of the standards) to be kept square to the line of the standard, vertical and true. The blocks to be neatly let into the stone, and secured by lead or grouted cement run in. The butt ends to stand up 1 inch high above the surface of the platform; they are to be 1 inch thick and strengthened with feathers (as shown in an accompanying diagram), and they are to be 6 inches in length, measured transversely to the line of the standard.

6. The blocks which are to carry the defining lines which mark the intermediate divisions of the standards, to be solid 3-inch cubes, having their upper surfaces flush with the surface of the platform, and let 3 inches deep into the Portland stone, and run in with lead. The division line on each block to be strongly engraved upon the upper surface, and drawn truly square to the line of the standard.

7. The terminal blocks to be also of bronze, 18 inches long, measured in the line of the standards, 6 inches broad, and 3 inches thick. The upper surface to be flush with the surface of the platform, and the blocks let 3 inches deep into the stone; the blocks to be well bedded and run in solidly with lead. The *terminal point* of the standard to be in the middle of the bronze block, and carefully marked and defined by a strong engraved line on the upper surface of the block; the block to be further graduated with inches and eighths on each side of the terminal point as a zero, to the distance of 6 inches on each side. The above applies to the imperial standards, which will need only one such block apiece.

8. For the 66-foot standard the distance should be defined at every 10 links. For the 100-foot standard, at every 10 feet.

9. The metric standard to be fitted with a zero block and division blocks in like manner as already described. Since, however, this one standard is to act for two standard lengths, viz., the 10-metre standard, and the 20-metre standard, there must be two terminal division blocks at the 10 and 20 metre distances. The terminal division blocks should be graduated on each side of the terminal point as a zero to the distance of at least one decimetre, and the decimetres should be subdivided into centimetres, and each centimetre into two or four equal parts.

10. The figures showing the several lengths and denominations to be cut into the stone as suggested.

11. There seems to be no convenient way of breaking up the 20-metre standard further than into 5-metre lengths. There is no object in having a distance marked at every metre.

12. It does not appear to be necessary to establish a 5-metre standard. Such a measure must be of very little practical value, especially as a chain. Even the 10-metre standard is very short as a chain standard.

13. It would be advisable to establish some ordinary convenience for adjusting chains on the spot. For it will be seen that when a chain is tested by the standard and found incorrect, the owner will wish to set it right; this is done by taking out or putting in one or more of the short connecting links at the proper places for the adjustment, and this having been done, the chain would be tried again, and again corrected till sufficiently correct. All this must of course be done on the spot (because it is out of the question that the owner of the chain should carry it home after trying it in order to adjust it, and then return to the standard to check it again), and except some convenience is provided, the stone platform will be used as an anvil, and be in time damaged. The tools required are a hammer, two pairs of gripping tongs, and a portable anvil (which might be kept in the sentry box hard by). The anvil would then be

Appendix XII.—*continued.*

carried to the different parts of the chain, and the chain adjusted very easily and conveniently.

14. For the inscription upon the stone, placed between the imperial and metric standards chains, the following seems sufficient.

PUBLIC STANDARDS OF LENGTH
LAID DOWN BY THE STANDARDS COMMISSION.
MDCCCLXX.

Metric Measures.	Imperial Measures.
Chain of double dekametre = 20 metres.	Chain of 100 feet, divided into tenths of 10 feet each.
Chain of dekametre=10 metres.	Chain of 100 links = 22 yards.
Divided into lengths of 5 metres each.	Divided into tenths of 10 links each.

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endments
Sale of
as Acts.

26. *Operation of proposed Amendments in Sale of Gas Acts.*

It may be deemed of some importance to add to the statements contained in Part I. of this Appendix, as to the mode in which the provisions of the Sale of Gas Acts of 1859 and subsequent years have been carried out, so far as they are connected with the Standards Department, some further information of the working of the Acts as between the local inspectors of gas meters and the public, and to lay before the Commission the evidence of practical persons whose experience and opinions may deserve consideration, as to any existing defects either in the law or in the practice of the inspectors, with a view to their improvement. This information will be found in Appendix VII.

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Additional information as to the working of the Sale of Gas Act in the metropolis, where it has been more efficiently carried out, may be found in the evidence of Mr. Cresy, including a general statement of the receipts and expenditure by the Metropolitan Board on account of the inspection of gas meters, a summary of which is as follows:—

). 8502-2.

Up to the present time the fees for verifying gas meters which have been received by the Board in the eight years from 1861–2 to 1868–9 have amounted to 9,473*l.*, whilst the total expenses have been 25,388*l.*, showing a deficiency of 15,915*l.* But a great part of this expenditure consists of preliminary expenses not liable to recur, viz.:—

Law and Parliamentary expenses	£ 202
Buildings for testing houses and offices	9,070
Gas holders and instruments	2,015
Gas fittings	1,487
	£12,774

Taking the last three years only, into which these preliminary expenses have not entered, the account will be as follows:—

Year.	Receipts from Fees.	Expenses.	Surplus + or Deficiency —.
	£	£	£
1866–67	1,436	1,682	— 146
1867–68	1,412	1,542	— 130
1868–69	1,863	1,588	+ 275
Total	4,711	4,812	— 101

Considering that the annual receipts from fees have progressively increased, whilst the expenditure has decreased, it would appear that, apart from the preliminary expenditure, the system is now self-supporting in the metropolitan district. By the proposed more general adoption of the provisions of the Sale of Gas Act throughout the kingdom, and the consolidation in certain districts of the duties of verifying gas meters, and weights, measures, and balances, it is probable that the total annual receipts from fees of verification will considerably exceed the total expenditure for the discharge of these duties.

Imperfections of Act of 1859, and proposed amendments.

It should be observed that many complaints of the imperfections of the Sale of Gas Act, 1859, were made after its passing, and in the following session no less than three Bills were brought into Parliament to amend the Act.

Bill No. 1 was first introduced by Lord Redesdale in the House of Lords, and was passed and sent to the House of Commons on 11th June. Eventually this Bill, without material alteration, became law at the end of the session as the Act 23 & 24 Vict. c. 146. Its provisions were limited to extending the time of commencement of the Act of 1859, and allowing counties the option of adopting that Act.

Bill No. 2 was brought forward in the interest of the gas companies, and Bill No. 3 on the part of the gas meter makers, both in the House of Commons.

These Bills were submitted to a Select Committee of the House of Commons, and evidence heard respecting them, and the whole subject fully considered by the Committee. The result was that Bill No. 3 was reprinted with their amendments. It provided for the repeal of the Act of 1859, and recasted it with further provisions. Bill No. 270 of 1860.

The most material of these proposed enactments were,—

S. 4, requiring the Treasury to appoint an official chief inspector to superintend the carrying of the Act into execution.

S. 14, requiring every maker or repairer of meters to be registered at the Exchequer every year before 31st January, and a certificate of such registration to be issued to such maker of meters bearing a stamp duty of 5*l.*

S. 15, requiring the Comptroller-General of the Exchequer, upon application and payment of the customary fees, to verify copies of the gas-measuring standards for any such maker or repairer of meters; and all such copies were to be examined and reverified whenever so required by the chief inspector, and if found incorrect or damaged, the Exchequer stamp was to be defaced, and the certificate of the meter maker suspended until such copies were repaired and duly reverified.

S. 16. All meters to be tested by the inspector of the district where they were made or repaired.

S. 18. Any registered meter maker, provided with copies of the gas measuring standards fixed upon his premises to the satisfaction of the chief inspector, authorised to require the district inspector to test and stamp any new or repaired meters upon such premises, on giving due notice in writing.

S. 20 contains improved rules for testing meters.

S. 21–24 contain provisions for the construction and use, and the testing and stamping of the indices of meters, and the separate fees to be charged for testing them.

Eventually, however, the amended Bill was dropped in the House of Commons, owing to the lateness of the session, and the short amending Act 23 & 24 Vict. c. 146., only was passed. It was understood that the question was to be brought forward in Parliament in the following session, as all the parties concerned were agreed upon the imperfections of the Act of 1859, and some intimations were given to a deputation of the Gas Meter Association to the Treasury that the Government would take up the matter with a view to legislation in the following year. Nothing, however, was then done.

In 1863, another Act for amending the Sale of Gas Act of 1859 was introduced by the Government at the instance of the Metropolitan Board of Works, and which embodied the suggestions contained in Mr. Mills's Paper. But it was not proceeded with. No. 61 of 1863.

The existing provisions of the Sale of Gas Acts may be considered under the three general heads.

1. Authority over inspection of gas meters.
2. Verification of gas meters.
3. Inspection of gas meters.

Authority over inspection of gas meters.

The authority of the inspection of gas meters in districts other than the metropolitan district, where it is placed under the Metropolitan Board of Works, is now exercised as follows:—

In the Sale of Gas Act of 1859, the authority is conferred:

In England.—In counties, on the magistrates in general or quarter sessions;
„ In boroughs, on town councils, not being manufacturers of gas; otherwise on the borough magistrates.
Scotland.—In counties, on the county magistrates in general or quarter sessions;
„ In Royal burghs, on the borough magistrates in general or quarter sessions.

Provisions are contained in the Act for uniting the several county and borough districts in Great Britain, by agreement, so far as relates to the inspection of gas meters.

Appendix XII.—*continued.*

Ireland.—In towns and boroughs, on the town council, or town commissioners, not being manufacturers of gas; otherwise on the grand jury of the county. Provision is contained for the extension of their jurisdiction to all meters in use beyond the limits of such towns and boroughs supplied from their gas-works.

It has been already shown at p. 392, that this authority has been exercised as follows:—

	Counties.	Counties of a City and of a Town.	Cities, Boroughs, and Royal Burghs.	Total.
England - -	1	7	33	41
Scotland - -	—	—	8	8
Ireland - -	—	—	2	2
Total -	1	7	43	51

It is thus shown, as might have been expected, that it is in cities and boroughs only that the Act has been adopted, so far as procuring copies of the gas-measuring standards, although there is reason to believe that in many of these places the standards are not actually used. The action of the local authorities in each district being practically limited to the appointment and control over the inspector, and not extending to any inspection with a view to penal consequences, or to adjudication, there would not at first appear to be equally strong grounds for withdrawing the jurisdiction from corporations or town councils of boroughs, as in the case of the inspection of weights and measures.

But there is an important reason why the authority over the inspection of gas meters, like that of weights and measures, should be taken from corporations and town councils, (except in the case of the ten important and populous cities and boroughs, already referred to, where it should be exercised by the local magistrates,) and entrusted to the county magistrates. That much of the gas from the works in these boroughs is supplied to consumers outside the limits of these boroughs, where neither these borough authorities nor the inspectors have jurisdiction.

See Appendix VII.

I am therefore of opinion that the appointment of and control over the inspection of gas meters should rest in all such cases with the county magistrates, and not with town councils or corporations. It has been stated by Mr. Crosley, that in a large and important city and borough in the West of England, the inspector was nominated by a meter maker, who was a member of the town council. It is obviously expedient that provision be made by law that no person, either interested in the manufacture of gas, or in any way connected with the manufacture or adjustment of gas meters, should have any influence on the appointment of an inspector of gas meters, or on the discharge of his duties.

It is of much importance that the provision of the amending Act of 1860, making it optional in counties to adopt the Sale of Gas Act, should be repealed; and that in all counties where gas is sold under the authority of Parliament, the magistrates should be required to adopt the Act.

The main object of the Sale of Gas Act of 1859 was to obviate an admitted evil; the construction and use of what are termed high-spouted meters, that is to say, wet meters allowing a considerable height of water above the water line, and thus diminishing the capacity of the measuring chamber. This object has been effectually attained in all places where the Act is efficiently carried out. There is in the Standards Department a specimen of one of these high-spouted meters, which was for some time in use, and which bears evidence of the water having been usually so high above the correct water line, that the capacity of the measuring chamber must have been only about one half of what it ought to have been. I am informed that many of these high-spouted meters are still made and in use in districts where there is no inspection. The public who are gas consumers are consequently great losers from these untested and unstamped meters.

Periodical reverification of local gas-measuring standards.

The defect in the Sale of Gas Act, 1859, in not providing for the periodical reverification of the copies of the gas-measuring standards used by inspectors of gas meters has been before referred to. The periodical reverification of the official gas-measuring standards, as provided for by the clause in the Standards Act, required the official standard measures of capacity to be reverified every five years. Mr. Crosley thinks that the local standards should be reverified once in every five years, and oftener if required after repair or adjustment. It will perhaps be sufficient that an enactment should require them to be officially reverified not less than once in ten years, like other local standard measures of capacity, and oftener if required. The ten cubic feet measuring standards are generally used, and they are cumbrous and expensive instruments to be removed. An indenture or certificate of verification should be issued from the Standards Department as a proof of their due verification within the period prescribed by law.

Considering that the accuracy of any one meter affects the interests of two parties only, the individual gas consumer and the company, the same stringency of regulation required for commercial weights and measures cannot be applicable to gas meters;

Considering also that by far the largest proportion of gas meters in use are the property of gas companies, whose inspectors periodically examine all meters used for the gas supplied by them, and that it is the interest of the gas companies to keep such meters in good working condition;

That it has not hitherto been thought requisite to require by law any compulsory reverification of gas meters at any specified period; that there is no public advantage to be gained by it, nor any evident means of enforcing it, and that the consumer has now the means of protecting himself;

I do not think that the Standards Commission are called upon to make any recommendation for the compulsory periodical reverification of gas meters.

Verification of gas meters.

The duties actually performed by the inspectors of gas meters appointed under the Sale of Gas Act are those of verification and stamping of gas meters.

In order to provide the requisite means of carrying into effect the provisions for the due verification and stamping, and periodical reverification of gas meters throughout the kingdom, it may be enacted that in all counties or districts of verification, where gas is sold under the authority of an Act of Parliament, and no special inspectors of gas meters may have been appointed, the duties shall be discharged by the verifier of weights and measures, for whom the requisite gas-measuring standards and other appliances shall be provided by the local authorities.

With respect to the verification and stamping of the indices of gas meters, to which attention has been called in Appendix VII., it will be seen by referring to s. 12 of the Sale of Gas Act, that no new legislative enactment is required. This clause directs that "every meter which "shall be found by such inspector to measure *and register* "*quantities accurately, &c.*, shall be stamped in such "manner and on such part of the meter as shall be "specially directed by the authority appointing him, or in "default of such direction as shall in his opinion best "prevent fraud." It will therefore be sufficient that the mode of verifying and stamping the indices be clearly pointed out in the instructions to the verifying officers. A ready method has been suggested by Mr. Crosley and has already been approved by the Astronomer Royal (see Appendix VII.).

The several regulations for issuing detailed official instructions of the Board of Trade from time to time, for the mode of construction and verifying and stamping weights and measures, the scale of fees payable, official supervision, &c. should be made applicable to gas meters.

In these official instructions due consideration may be given to the several suggestions for remedying the stated defects in the existing practice of testing meters.

Mr. Mills's suggestion (see Appendix VII.), that all meters shall be tested by the inspector of the district in which such meters are made, repaired, or used for the purpose of measuring the gas supplied to the consumer, under specified penalties, appears unreasonable, unless the words be added "or intended to be used," as they must be tested and stamped before they are fixed and used. But such a restricting provision does not appear to be requisite. It is probable that Mr. Mills's complaint of meters being sent a considerable distance out of the district to be tested has arisen from greater facilities being granted or a lesser charge made in the district out of the Metropolis. No such complaint would be likely to arise if a uniform system of testing and charge were established and enforced.

In order to effect this object it is desirable to adopt the following suggestions:—

1. Meters to be marked with the number of lights they are constructed to maintain, upon the computation that

Appendix XII.—*continued.*

the standard light should consume five cubic feet of gas per hour, with half an inch pressure at the inlet of the meter.

2. That the scale of fees should be established on the principle suggested by Mr. Crosley (see Appendix VII.), his scale not differing materially from that proposed by Mr. Mills.

It will be also expedient that the Board of Trade should be empowered to make special regulations for the testing of large station or other meters constructed to pass more than 10 cubic feet of gas at one revolution or complete action of the meter, as the largest gas-measuring standard is of the capacity of 10 cubic feet.

Question of periodical reverification of gas meters.

The question of the periodical reverification of gas meters requires some consideration. Mr. Crosley alone has referred to this question, suggesting that all wet meters shall be reverified at least once in every five years, and dry meters every three years.

Evidence on the duration of gas meters after verification was also given before the Select Committee on the Sale of Gas Amendment Act, No. 3, in 1860.

Q. 91-5. Mr. Defries, as representing the dry meter makers, considered that meters last more than 10 years after stamping.

Q. 151. Mr. Crosley, representing the wet meter makers, said, that 8 or 10 years was the average life of a meter, but all meters should be examined once in 3 or 4 years.

Q. 284.

Q. 262. Mr. King, who was connected with the Liverpool gas companies, stated, that in ordinary cases a meter should last 4 or 5 years without requiring to be taken down to be cleaned.

The following information has been given to me respecting the gas meters belonging to one of the principal metropolitan gas companies.

Of the gas meters used by consumers of their gas, more than 90 per cent. are the property of the company; in fact, as a rule, I believe that at least a similar proportion of all meters in use belong to the several gas companies. The gas company referred to have about 20,000 meters in use by consumers, and another company with whom they are now consolidated, have about 8,000, making a total of 28,000 meters. They send out nearly an equal proportion of wet and dry meters, but many companies now supply dry meters exclusively.

The average cost of taking down, testing, and refixing a meter belonging to the company may be taken at 3*s.* 8¼*d.*; that the whole number thus amounts to 5,162*l.* 10*s.*

As to the duration and condition of the meters in use, the number of meters examined in 1867 at their principal station was 2,825. The following table shows the percentage of various defects observed. But it should be noticed in reference to these meters, that a considerable improvement has taken place in the construction of meters during the period since the Sale of Gas Act came into operation.

Condition of meters brought home to the gas works from all causes in 1867, including those removed from errors observed, complaints, accidents, gas ceasing to be used, &c., &c.

	Dry.	Wet.
1. Registered correctly - -	19	41½
2. „ fast - -	12¾	2½
3. „ slow - -	27¼	1¼
4. Allowed gas to pass without registering any quantity - -	12½	3½
5. Would not pass any gas -	15	13¾
6. Defects of various kinds not connected with registration -	13½	37½
	100	100

Average age of meters condemned as being past repair, 16 years.

The dry meters registering *fast*, averaged 4¾ per cent. against, and those registering *slow* averaged 6¾ per cent. in favour of the consumer.

Defects under class 4 are detected by the inspector quarterly; but those under class 5 are made known to the company in a few hours.

It results that under 1, 2, 3, and 4, it is the interest of the company to ascertain whether meters are in fair working condition.

Under all the circumstances, it may be expedient to require all gas meters to be reverified and restamped after they have been in use 10 years.

Inspection of gas meters, as distinct from their verification.

Some of the provisions of the Sale of Gas Act, 1859, which have been already referred to at p. 388 of this Appendix, relate more particularly to the inspection of gas meters.

Section 17 enacts that after 13th October 1870, all gas meters used for buying and selling gas, or for collecting any rates or duties, or for making any charges on the passage, transmission, or conveyance of gas, shall be stamped by the inspectors; and any unstamped meter so used shall, on being discovered by an inspector, be seized, and any person knowingly using an unstamped meter shall, on conviction, forfeit a sum not exceed 5*l.*, and the meter shall be forfeited and destroyed.

Section 20 defines the powers of justices and inspectors for entering houses and other places where meters are fixed or used, for the purpose of inspecting them. They can only do so at all reasonable hours, upon the request and at the expense of any buyer or seller of gas, who shall have given 24 hours notice in writing to the other party to the contract.

Cresy, Q. 288. But practically there has never as yet been any inspection of gas meters as distinct from verification. The duties of the inspectors have been limited to the comparison, verification, and stamping of meters. No fine appears to have been ever imposed through the medium of the inspectors. Although a few cases of fraud have come to the knowledge of the inspectors in testing of the meters, they are only reported to the gas company, who are left to proceed against the offender in consequence of this information. There is this essential difference between frauds with gas meters and with weights, measures, and balances, that in all cases the first are committed by the public, who are the buyers, against the gas companies, the sellers, the measuring instrument remaining in the custody and in the power of the buyer; whilst the latter are committed by the tradesman or dealer, whether seller or buyer, who has the weighing or measuring instruments, against the public who deal with him.

Q. 2897.

In fact, whatever inspection is required for detecting either fraud or defects in or connected with gas meters fixed and used, is now exercised from time to time on the part of the gas companies by their own inspectors. If any fraud is discovered by the person using a gas meter, it rests with the company to prosecute the offender. There is no question of fraud on the part of the company. Should defect be discovered in the meter, a rectification of the amount of gas consumed, as erroneously indicated by the defective meter, is readily made; either the company makes a further charge or the consumer strikes off a certain proportion of the charge already made by the company, as the case may be. As between buyer and seller of gas, there has been no call for any official inspection of gas meters, as distinct from verification.

Q. 287

How duties of inspection of gas meters to be exercised.

A verifier of weights and measures, if provided with the proper gas-measuring standards, and due instructions and appliances for using them, would be enabled to compare and verify gas meters in his district; but inspectors of weights and measures, who can test such weights and measures or balances with their portable testing instruments, would be wholly unable to test the just condition or due accuracy of the action of gas meters, if called in to inspect them.

It is evident therefore that the proposed separation of the duties of verification and inspection of weights and measures, and their exercise by distinct officers, is wholly inapplicable to the verification and inspection of gas meters. Indeed, it might be considered doubtful whether it is expedient to continue the power of local inspection of gas meters, as distinct from their verification, by the officers appointed under the Sale of Gas Act; but upon inquiry, I have been informed by persons who are practically acquainted with the working of the Act, that this power, even if dormant, affords a certain amount of protection both to the gas companies and the public.

In cases where the gas meter is the property of the consumer, the gas company may thus call upon the inspector to remove the meter for the purpose of examination, a power which their own inspector does not possess under the general law; and when the meter belongs to the gas company, it may be a satisfaction to the consumer that he can at any time call upon the official inspector to give an independent judgment on the condition and action of the meter.

I would therefore suggest that it is expedient that the clauses empowering inspection of gas meters by the officers appointed under the Sale of Gas Acts should be continued, and that this duty be exercised by the officers charged with the duties of the comparison, verification, and stamping of meters.

With respect to the enforcement of the legal provisions

Appendix XII.—*continued.*

against unstamped meters, or meters not duly reverified within the periods prescribed, it may be sufficient to declare the illegality of such unstamped or not duly verified gas meters, and that any contract made in relation to them shall be void, and no charge recoverable by law.

General powers of inspection by gas companies.

The general powers of the gas inspectors, who are officers of gas companies, to enter premises and inspect gas meters and fittings, are contained in the Gasworks Clauses Act of 1847, 10 Vict. c. 15, "for consolidating in one Act "certain provisions usually contained in Acts authorising "the making of gasworks for supplying towns with gas."

S. 14 empowers companies to let for hire gas meters and fittings, and, in point of fact, by far the greater number of meters used by gas consumers, probably not less than nine-tenths of the whole number in use, are the property of gas companies, rented by the consumers.

S. 15 empowers any officer of a gas company, duly appointed for that purpose, to enter at all reasonable times any building or place lighted with gas supplied by the company, in order to inspect the meters, fixings, and works for regulating the supply of gas, and for the purpose of ascertaining the quantity of gas consumed or supplied; and if any person hinder such officer from entering and making such inspection, he shall for every such offence forfeit to the company a sum not exceeding 5*l*.

The provision empowers the gas company only to inspect, not to take away, the meter, or any part of the fittings, under any circumstances whatever, when they are the property of the consumer, nor when they belong to the company, so long as the rent is duly paid. In case of fraud or misuse of meters or fittings, or wilful injury to them, there are other provisions for imposing penalties, and for the mode of enforcing them.

In case of non-payment of rent for gas meters and fittings supplied by the companies, they are empowered under ss. 16 and 17 to cut off the supply of gas, and to remove their meter and fittings after 24 hours' notice.

Further powers granted in local Acts.

But attention should be called to certain provisions contained both in local Acts of previous sessions and in bills of the present session of various gas companies in the United Kingdom, which appear to be at variance with, and in some measure to defeat the provisions of gas meter inspection in the public general Sale of Gas Act of 1859.

In many of the local Acts obtained by gas companies after the passing of the Gasworks Clauses Act of 1847, the powers of their officers are limited, as laid down in that Act, but in later years further powers have been asked for and obtained.

Thus, in the Imperial Gas local Act of 1869, 32 & 33 Vict. c. 128. s. 84. empowers the company "at all reasonable times to have access to and be at liberty to *take off, remove, test, inspect, and if necessary repair any meter belonging to a consumer;* and if the meter be found in "proper order, and proper and sufficient in all respects, "the taking off, removing, testing, inspecting, and replacing to be done at the expense of the company, but "otherwise at the expense of the consumer, together with "the cost of repair; and if *any consumer refuses or prevents "the access to and removal of such meter for the purpose "aforesaid, it shall be lawful for the company to cut off "the supply of gas without further notice.*"

Similar powers are contained in several of the Gas Bills of this session now before Parliament, which have been brought under my notice by the draughtsman who drew the Sale of Gas Bill for Lord Redesdale in 1859, and who says:—

"Suppose a dispute occurs between a company and a consumer as to the quantity of gas and the correctness of a meter. The consumer may give notice and apply to the inspector under s. 20 of the Sale of Gas Act, but the company might immediately remove the meter before the inspector had any power to do so, and the protection thus intended to be given to the consumer is entirely taken away.

"This kind of clause in local Acts is now so common that practically the provision of the general Act of 1859 is inoperative, and thus the fact is accounted for that no resort has been had by consumers to the protection afforded to them by that Act."

He adds, "By s. 21 of the Sale of Gas Act, either party "dissatisfied with the inspector's testing, may appeal to "the two adjoining inspectors and to the quarter sessions, "but *in these local Acts there is no provision for appeal "from the decision of the company, although one of the "parties to the contract.*"

Nullifying provisions of Sale of Gas Act.

It will be at once seen that the power thus given to a gas company to remove and alter any meter belonging to a consumer entirely nullifies the powers of inspection conferred on the local inspectors by the Act of 1859, and does away with the security for accuracy afforded by their verification and stamping of gas meters.

Another important infringement on this Act is to be met with in s. 63 of the Caermarthen Gas Bill of this session, which empowers the company *to approve* of every meter belonging to a consumer. This provision would *override s. 16 of the Act of* 1859, under which any consumer of gas may use a meter duly stamped under the provisions of the Act.

Repeal of such powe suggested.

As to all such powers as I have described, which may be contained in local Acts, and are inconsistent with the provisions of the general law, I have to suggest, for the consideration of the Commission, that they should recommend such powers to be discontinued by law.

Suggested action of Board of Trade.

In the meantime, suggestions have also been made to the Board of Trade as to the expediency of measures being taken for opposing those clauses of all local gas bills now passing through Parliament which contain provisions such as those described, as well as altering No. 41 of the Standing Orders of the House of Commons, so as to secure that printed copies of every local Bill giving powers to any corporation, company, or person in relation to weights and measures and gas meters, their inspection and use for sales, including markets and fairs bills, be submitted to the Board of Trade with the view of steps being taken for preventing the legalisation of any proposed provisions which may be inconsistent with the general law applicable thereto.

Their minutes—power to interfere.

The Minutes made by the Board of Trade upon those suggestions refer to the important effect of the proviso in the Amending Act of 1860, by which, "notwithstanding "anything contained in the Sale of Gas Act, 1859, it "shall not come into operation in any county until the "magistrates in quarter sessions, &c., shall have resolved "to bring such county under the operation of the Act;" and to the alleged fact that the Act has been adopted in two counties only, and is practically a dead letter throughout the kingdom. It is, therefore, suggested, that it might be considered that these further powers to gas companies were required for ensuring correctness in meters. The Minutes also state that the Board of Trade is not in the habit of making any special report on such private or local Bills, nor can such clauses be officially noticed. In fact, that the Board of Trade cannot interfere with these local Bills.

Nothing, therefore, remained for me except to state in reply that, as the Standing Order No. 41 of the House of Commons directs a printed copy of every Bill for *giving powers to any company* to be deposited at the Board of Trade, it appeared to me that the action of the Board would follow, if deemed requisite for the public service. From the Minutes it appears that such is not the practice, and my suggestions consequently fail in accomplishing their intended object.

Large question of overriding public Acts by clauses in local Acts.

That object was to call attention to what I believe to be an important question, the increasing practice of obtaining from Parliament powers in local Bills, which not only override in certain localities the provisions of public Acts for establishing a general and uniform system of inspection of weights and measures and of gas meters, but also confer powers on gas companies, which I am convinced they ought never to possess, and never would have obtained if the attention of Parliament had been properly drawn to their effect, of depriving the public who are consumers of gas of the protection previously afforded to them. It appeared to me that it was obviously requisite at once to take steps to check this practice.

It is to be observed that the question raised by me in no way refers to the operation of the Sale of Gas Act, 1859, *in counties*, or to the powers exercised by county magistrates; that, although the Act has been adopted only nominally in many boroughs, yet it is in practical operation in the present form in the metropolitan district, in one county, Gloucestershire, and in 51 cities and boroughs, to which copies of the gas measuring and official stamps for the inspectors have been furnished; and that the Act is considered to be in operation in all boroughs where gas is manufactured and sold, is proved by the fact that it is customary in local Acts, giving power to gas companies in places where there are no gas measuring standards, to insert a clause requiring the use, by consumers, of meters duly examined and stamped under the Sale of Gas Act. (*See* Peterborough Gas Act, 1868, 31 & 32 Vict. c. 76. s. 46, and Oxford Gas Act, 1869, 32 & 33 Vict. c. 122. s. 54, &c.)

Applicable also to inspection of

It is further to be observed that it is a common practice to obtain a local Act for establishing a market or fair, and

Appendix XII.—*continued.*

ights and asures in arkets, &c.

to insert in such Acts a clause empowering a company or other proprietor to regulate the weights and measures used in the market. Whenever such power is obtained the local inspector of weights and measures is set at defiance, and can obtain no conviction for illegal weights, measures, or balances in use there.

to pre- ntion of ch anoma- s.

If the suggested resolution for the amendment of the law and repeal of these disturbing provisions in local Acts should be adopted by the Commission, means may be afforded by the passing of a general Act for carrying out their recommendations to get rid of the existing anomalies, and to establish a general and uniform system.

But effective measures should also be adopted for preventing any future overriding of the provisions of such a general Act as is now permitted by means of clauses in local Bills.

nclusion.

This Paper may now be concluded with the following proposed resolutions for the consideration of the Commission, in which are contained such amendments on those suggested at the close of the preceding paper, as further information and the evidence of witnesses which have been laid before the Commission appear to render expedient.

These proposed resolutions have been submitted to the Astronomer Royal, and so far approved by him as embodying the several detailed points of this large question in a convenient form for the judgment and expression of opinion of the Commission:—

Proposed Resolutions.

§ I. Establishment of a more uniform and efficient system of verification and inspection of weights and measures.
§ II. Local authorities of districts of inspection and of verification.
§ III. Separate and distinct system of verification and of inspection of weights and measures.
§ IV. Districts of verification, and appointment of Verifiers of weights and measures.
§ V. Duties of Verifiers of weights and measures.
§ VI. Standards and other instruments of verification.
§ VII. Inspectors of weights and measures.
§ VIII. Other duties connected with or analogous to the inspection of weights and measures.
§ IX. Verification and inspection of Customs, Excise, and Post Office weights and measures, &c.
§ X. Proposed amendments in the Sale of Gas Acts.
§ XI. Powers and duties of the Board of Trade in relation to the verification and inspection of weights and measures.
§ XII. Other provisions.

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§ I.—*Establishment of a more uniform and efficient system of Verification and of Inspection of Weights and Measures.*

Considering,—

That the Act of 1824 for establishing uniformity of weights and measures contained no provisions for uniformity of inspection of these weights and measures;

That the Act of 1835, under which local Inspectors were appointed, for discharging the duties both of verification and inspection of weights and measures, expressly sanctioned the continuance of existing powers and privileges of verification and inspection in the several localities;

That further powers for these purposes have since been granted by Parliament in public and local Acts;

That the want of uniformity in the several modes of verification and inspection constitutes a serious defect in the system now in force;

That, as regards Great Britain, no control or supervision by any responsible public department, over the appointment of Inspectors and the performance of their duties now exists, nor are adequate means provided for securing the due and uniform discharge of their duties;

That numerous complaints have been made in petitions presented to Parliament in recent sessions, and in documents laid before us, of the unsatisfactory state of the existing laws relating to the inspection of weights and measures, and praying for their amendment;

That full evidence of many defects in the existing law and practice has been submitted to us by competent witnesses, and is contained in the papers officially laid before us;

That in order to carry out advantageously the recommendations contained in our Second and Third Reports, relating to important alterations in the weights and measures now legalised for use, and more particularly the permissive introduction of metric weights and measures, it appears to us requisite that an improved system of verification and inspection be adopted, both in Great Britain and in Ireland;

We are of opinion—

(1.) That it is expedient to establish a more uniform, efficient, and responsible system of local verification and of inspection of weights and measures throughout the United Kingdom.

§ II.—*Local Authorities of Districts of Verification and of Inspection.*

Considering,—

That with respect to the local authorities under whom the inspection of weights and measures is now placed, it appears to us to be wrong in principle and injurious in practice, that such authority should be exercised in towns and boroughs by Corporations and Town Councils, members of which frequently are tradesmen using weights and measures subject by law to inspection;

That we are satisfied from the information laid before us that in many of such towns and boroughs the inspection is very inefficiently carried out, and the provisions of law relating to weights and measures very inadequately complied with;

That it appears from evidence laid before us that the inspection of weights and measures in many of such towns and boroughs of Great Britain has been voluntarily transferred to the county inspectors;

That the authority now exercised by lords of manors, courts leet, parish vestries, companies, and even private persons, whether by statute, charter, or prescription, is unsuited to the circumstances of the present time, and materially interferes with the establishment of a uniform and efficient system of inspection;

That it has been shown to us that it is expedient to amend the provisions of the Weights and Measures (Ireland) Act of 1862, requiring each petty sessional district of a county, and each borough in Ireland, to be made a separate district of inspection of weights and measures;

We recommend,—

(2.) That the authority over the verification and the inspection of weights and measures in Great Britain be withdrawn from the control of all Corporations of Cities, Town Councils of Municipal Boroughs, Courts of Burgesses, Universities, Lords of Manors and Courts Leet, Ward Inquests, Parish Vestries, and other such corporations and persons in which it is now vested by statute, charter, custom, or local Act, and be transferred to the county magistrates, except in such of the more important and populous cities and boroughs as Parliament may determine; and that in such cities and boroughs to which the authority of the county magistrates over the verification and inspection of weights and measures shall not extend, the authority be placed in the hands of the local magistrates.

(3.) That the authority over the verification and inspection of weights and measures in Ireland remain with the Inspector-General of Constabulary, except in certain parts of the police district of Dublin Metropolis, as defined by the Act 30 & 31 Vict. c. 94, where it shall remain with the Commissioners of Metropolitan Police; and that the several local districts of verification and inspection shall be regulated from time to time by the Inspector-General of Constabulary, with the approval of the Board of Trade.

§ III.—*Separate and distinct system of Verification and of Inspection of Weights and Measures.*

Considering,—

That a manifest distinction exists between the duties of verification and those of inspection of weights and measures;

That the Verifier has to test weights and measures, and ought, in our opinion, also to test balances, for the purpose of ascertaining that these instruments are

Appendix XII.—*continued.*

properly constructed and duly accurate, and of certifying to their correctness by a stamp, thus acting for the protection both of the tradesman and his customers, whilst the Inspector has only to satisfy himself that these instruments are not grossly defective or fraudulent, to the detriment of the public, in which case he is to take legal proceedings against the offender;

That the duties of a Verifier are performed chiefly in his office or workroom, being thus of an official or mechanical character, whilst those of an Inspector consist in visiting shops and other places of trade, and are of the nature of police duties;

That the discharge of the duties of a Verifier requires special qualifications, and far more technical knowledge and skill than those of an Inspector;

That previously to the passing of the Act of 1834, the duties of verification and stamping, and those of inspection, were always exercised by separate and distinct officers, and that even now these duties are so performed in many localities, particularly in the City of London, where, according to evidence received by us, they are very satisfactorily discharged;

That in France, Germany, and other countries, where much attention has been given by the authorities to the subject of weights and measures, special officers are appointed as verifiers, whilst the duties of inspection are left to the police;

That under an improved system of verification in this country, and upon the legalisation of metric weights and measures, the duties of verification must necessarily be largely increased, and in order that these duties may be properly discharged, we are satisfied that it will be requisite to adopt means for securing the appointment of duly qualified Verifiers in the several localities;

We recommend—

(4.) That the duties of verification and of inspection of weights and measures be exercised by distinct officers.

§ IV.—*Districts of Verification, and appointment of Verifiers of Weights and Measures.*

Considering,—

That it has been proved to us that the duties of verification of weights and measures are now exercised by not less than 1,355 separate officers, in as many districts of inspection in the United Kingdom, viz., 731 in Great Britain, and 624 in Ireland;

That out of the total number of Inspectors of weights and measures in the United Kingdom, at the present time, about 1,100, or more than 80 per cent., are police officers, who have their police duties to attend to, and who, as a general rule, have no remuneration for their services in relation to weights and measures;

That in Ireland, the duties of verification are performed in the 624 districts of inspection by as many separate officers of the Constabulary force, who are *ex officio* Inspectors of weights and measures, discharging these duties, under s. 5 of the Act of 1862, without fee or reward;

That the law now provides no security for the appointment of persons duly qualified to discharge the duties of verifying weights and measures, and makes no provision for their adequate remuneration;

That we are satisfied that such duties of verification are in general very imperfectly and inadequately discharged;

We recommend,—

(5.) That the several districts of verification in the United Kingdom be so arranged that one duly qualified Verifier, responsible for the duties of verification, be appointed in each county, or large division of a county, as well as in each of the larger and more populous cities and boroughs in Great Britain, to which the authority of the county magistrates shall not extend.

(6.) That the union, by agreement, of adjacent counties, for the purpose of verification of weights and measures, be authorised by law.

(7.) That Sub-Verifiers of weights and measures subordinate to the Verifier be appointed in such districts as may require them.

(8.) That the Verifiers give up their whole time to their duties of verification, if required by the local authorities, such adequate remuneration being given to them and to the Sub-Verifiers, by way of salary and not by fees, as the local authorities may determine, with the approval of the Board of Trade; and that the local authorities be empowered to award to them such retired or superannuation allowance as they may think fit.

(9.) That the Verifiers and Sub-Verifiers in Great Britain be appointed by the county magistrates, or by the local magistrates mentioned in Resolution 2, and in Ireland by the Inspector-General of Constabulary or the Commissioners of Dublin Metropolitan Police, the appointments of Verifiers being in every case subject to the approval of the Board of Trade.

(10.) That previously to such approval, and in order to show that any such person is duly qualified to act as Verifier, a certificate be transmitted to the Board of Trade by the local authorities that the Verifier nominated for appointment has passed such special examination before the Civil Service Commission, as the Board of Trade shall from time to time determine.

(11.) That such certificate from the Civil Service Commission be not required in first appointments under the new system, provided that the magistrates certify that such person is duly qualified to act as Verifier from his previous experience as inspector of weights and measures.

(12.) That it be recommended in future appointments of Verifiers that they be selected from the class of Sub-Verifiers, and that in those districts where the inspection of weights and measures is exercised by officers of police, the duties of verification be generally entrusted to such officers of police, as being more especially qualified for their duties by their experience, habits, and knowledge of the locality; and as an encouragement to their good conduct from looking forward to such appointments by way of promotion.

(13.) That the Verifiers be liable to suspension or dismissal by the local authorities, with the approval of the Board of Trade, for misconduct, neglect, or inefficient performance of their duties, or other sufficient cause.

(14.) That the expenses of verification in each district of verification be paid out of the local funds, boroughs paying their due proportion of sums expended out of the county rate, after deducting corresponding receipts in aid of such county rate, as provided by the Municipal Corporations Act of 1835; such expenses consisting of the salaries of the Verifiers and other expenses attending the verification, including standards and other apparatus, and proper offices for the discharge of the duties; and that all fees of verification be carried in aid of such local funds.

§ V.—*Duties of Verifiers of Weights and Measures.*

Considering—

That it has been proved to us that no uniform system of verification is now practised, instances frequently occurring of weights and measures being verified and stamped as legal in one district of inspection, whilst such are rejected as illegal in an adjoining district;

That evidence produced before us has satisfied us that the law should provide against the sale and use of fraudulent and defective balances, by requiring them to be tested and stamped before being sold for use;

That it is expedient for the protection of the public, and for establishing a uniform and efficient system of verification, that authoritative regulations should be laid down by a responsible public department for the construction and verification of all such balances and of weighing machines;

That for the same reasons, and in order to carry out the recommendation in our Second Report for adopting conspicuous distinctive forms or marks for the several weights and measures of the imperial and of the metric system, it is expedient that similar regulations should be issued for the construction and verification of all such weights and measures;

That similar regulations will be requisite for establishing a more uniform and efficient system of periodical re-verification of weights, measures, and balances, and their stamping;

That in order to distinguish more readily between weights and measures of the Imperial and of the Metric system, and between measures of capacity and vessels for containing liquids or other articles, it is expedient that all legal weights and measures should have their legal denominations legibly marked upon them;

Appendix XII.—*continued.*

That it has been shown to us that it is now the practice in many districts of inspection for the inspector to adjust weights and measures before verification, and to charge a fee for such adjustment, and that frequently the work is very imperfectly done;

We recommend—

(15.) That the duties of Verifiers of weights and measures consist in the custody, preservation, and use of the local standards and other instruments of verification, and the due discharge of the several services connected therewith, including the testing and stamping from time to time of all legal weights and measures and balances and other weighing instruments.

(16.) That they be responsible that the local standards in their districts used for the purposes both of verification and inspection, be maintained in due conformity with the legal standards, and be duly reverified from time to time at the periods prescribed.

(17.) That they perform their duties according to such instructions as shall from time to time be furnished to them under the authority of the Board of Trade.

(18.) That not only all weights and measures, but also new balances and weighing machines, be tested by the Verifier and duly stamped or marked by him, when found correct, before being sold for use or being used for the purposes of weighing or measuring commodities for buying or selling or transport.

(19.) That before stamping any new weight, measure, balance, or weighing machine, the Verifier see that it is properly constructed, according to the regulations of the Board of Trade.

(20.) That such regulations provide that the beams of all balances be steeled at their centres and bearings;

(21.) That every iron weight have only one leaden plug for adjustment, not larger than sufficient to receive the several stamps;

(22.) That all earthenware weights be prohibited, after a period to be specified, and that all glass weights and measures and earthenware measures be constructed and stamped or marked, as shall be determined upon;

(23.) That all measures of capacity constructed of wood be of a cylindrical form, with a plain and even bottom, and not turned out of solid wood;

(24.) That before testing or stamping any weight or measure the Verifier see that it bears its legal denomination legibly marked upon it;

(25.) That all new weights, measures, balances, and weighing machines bear the stamp of the maker;

(26.) And that all lever weighing machines with special weights be constructed and adjusted so that the weights are of legal denominations; and that all such lever weighing machines now in use, having weights other than of legal denominations, be, after a specified period, altered and re-adjusted with weights of legal denomination, and, together with the weights, be duly verified and stamped.

(27.) That Verifiers stamp all new weights, measures, and balances with a verification stamp containing the number or distinctive mark of the district, and with a stamp denoting the year.

(28.) That such stamps of verification be provided at the cost of the Government by the Board of Trade, and furnished to the Chief Verifier of each district by the Warden of Standards.

(29.) That the stamps remain the property of the Government, reclaimable by the Board of Trade, through their officer the Warden of the Standards, at any time if occasion should so require it, in order to prevent an improper use being made of such verification stamps.

(30.) That on reverifying weights and measures in subsequent years, only the one or the two last cyphers of the date year in the same century be re-stamped.

(31.) That Verifiers charge such fees as shall be duly authorised from time to time by the Board of Trade for the comparison and stamping or for the adjustment of weights, measures, &c., and that they duly account for the amount to the local authorities.

(32.) That no weight or measure of any other denomination than the official standards be stamped by the Verifier, or be a legal weight or measure.

(33.) That all weights and measures, after re-adjustment, be compared and restamped by the Verifier, who shall charge the authorised fee.

(34.) That the Verifier do not re-stamp, during the same year, weights and measures previously stamped, and which he shall find upon comparison to be correct, but that he be empowered to charge the verification fee.

(35.) That every Verifier keep a book in which he shall enter minutes of all weights and measures, compared and stamped or adjusted, with the amount of fees received by him.

(36.) That all weights, measures, balances, or weighing machines used for trade purposes be reverified at least once in every year, and that the periodical reverification of such weights, measures, balances, and weighing machines be conducted by the Verifiers as they shall be required by the official instructions of the Board of Trade.

(37.) That no weight or measure which may be found defective or incorrect be mended or adjusted by a Verifier (unless it be a small rectification, for which no charge is made,) except upon the special authority of the Board of Trade granted to such Verifier, who shall be empowered to charge a specified sum for amending and adjusting according to a scale to be approved by the Board of Trade.

(38.) That such authority may be granted upon application under the hands of two magistrates of the district, who shall certify that such permission for the Verifier to adjust is needed to meet the requirements of the neighbourhood; and that the Verifier is himself competent to adjust, or has a competent mechanic or mechanics to work under him with all the necessary appliances.

(39.) That in case any weight or measure be found by the Verifier to be defective or incorrect, and be returned for re-adjustment, he shall always give a brief certificate of the error of the weight or measure so rejected.

(40.) That no Verifier be a maker of weights, measures, or balances.

(41.) That every Verifier make such returns to the Warden of the Standards, in relation to the instruments and duties of verification in his district, and in such specified form as the Board of Trade shall from time to time require.

(42.) That he give such aid or assistance to inspectors of weights and measures in the discharge of their duties as shall be required by the official instructions of the Board of Trade.

§ VI.—*Standards and other Instruments of Verification.*

Considering—

That there is now no security for requisite care being taken of the local standards and other instruments of verification, entrusted to the custody of the local officers, nor for the requirements of law for their periodical reverification and due accuracy being properly complied with;

That evidence has been produced before us of various irregularities in the local reverification of the standards used by inspectors;

That it has been shown in the First Report of the Warden of the Standards for 1866–7, that so far as could be ascertained, out of 301 cities and towns in Great Britain, which had been furnished with legal standards since the passing of the Act of 1824, the standards in 120 cities and towns, or 36 per cent. of the whole number, had not been duly reverified, and were consequently not legal standards; that out of 57 manors or liberties, the standards in 44, or 77 per cent., had not been duly reverified; and that the proportion of standards in Ireland which had not been duly reverified was nearly the same;

That no sufficient provision has been made by law, nor adequate means afforded to the local officers, for the verification of large weighing machines and weigh-bridges;

That we are satisfied that the provisions of existing law authorising the use, by inspectors of weights and measures in Ireland, of sub-standards of iron for the verification of commercial weights and measures should be discontinued, iron being an unfit metal for such purpose;

That it is expedient that the recommendations contained in Reports of former Standards Commissions, and in our Second Report, for establishing mural or public standards of length, in populous towns, should be more generally carried into effect, such standards as have already been erected having been much used and found serviceable by the public;

Appendix XII.—*continued.*

We recommend—

(43.) That one complete set of all the local standards required for his district of verification, duly verified at the Standards Department, be kept by the Verifier as standards for reference, and that the weights belonging to such set be reverified at the Standards Department not less than once in every five years, and measures not less than once in every ten years, and oftener, if required.

(44.) That all other standards required in his district for comparing and verifying commercial weights and measures, both for the use of the Verifiers and of the Inspectors (excepting supplementary iron 56 lb. weights for testing weighbridges or weighing machines for heavy goods, waggons, &c.) be originally verified and officially stamped in the Standards Department, and may be locally compared and reverified by the Verifier in presence of a witness, with his standards for reference, within the like periods.

(45.) That for the purpose of testing large weighing machines and weighbridges it be lawful for verifiers and inspectors to use such number of supplementary iron 56 lb. weights as may be requisite, together with at least one local standard weight of 56 lbs. of suitable material duly verified; and that every such iron 56 lbs. weight be cast with the number of the district in which it is used marked upon it, and be compared once a year by the inspector with a local standard weight duly verified, in the presence of a witness.

(46.) That a report of every such local reverification, attested by the signature of the witness, be transmitted by the Verifier to the Warden of the Standards, who shall, if he approve such reverification, transmit his certificate accordingly, and the Verifier or other officer shall not use such standards or supplementary iron weights for comparing weights and measures or weighing machines, until such certificate shall have been received by him.

(47.) That where there are several sets of local standards in any county or district of verification or of inspection, which may be required to be reverified from time to time at the Standards Department, it be the duty of the Verifier and of the Inspector to take care that they are sent at different periods, so that there be as little suspension as possible of the duties of verification and inspection, and that a spare set of standards be kept to supply the place of any set sent to London for re-adjustment and reverification.

(48.) That the provisions of the Weights and Measures (Ireland) Acts of 1860, 1862, and 1867 for legalising sub-standards of iron for the use of Inspectors of weights and measures, be repealed.

(49.) That the form, material, &c. of all local standards, together with the balances, stamps, and other apparatus used by the verifiers, be subject to such regulations as shall from time to time be issued by the Board of Trade.

(50.) That every Verifier have his standards, balances, and other apparatus, ready for inspection at such place and time as may be fixed from time to time by any official Inspector of Standards duly appointed.

(51.) That no local standard which may have become defective, and shall have been mended or re-adjusted, be legal, until reverified and re-stamped in the Standards Department.

(52.) That no local standard which may have become defective, be adjusted by any Verifier or Inspector of weights and measures.

(53.) That mural or public standards of length be securely fixed for public use in all populous towns, and the expenses connected with them be defrayed from the local funds. The local authorities to be responsible for keeping them in good order, and the local Inspectors to report to them periodically on their condition. These public standards not to be valid for convictions of false or defective measures.

§ VII.—*Inspectors of Weights and Measures.*

Considering—

That in regard to the duties of inspection, as distinct from those of verification, it appears to us to be a serious defect in the existing law and practice, that in several districts of inspection in the United Kingdom, wholly different classes of persons exercise the duties of Inspectors, there being also a great diversity in the mode in which these duties are discharged, as well as in the mode and amount of remuneration of the Inspectors;

That such duties of inspection are of the character of police duties, being exercised for the detection and punishment of offences against the laws;

That we find the practice has become very general in the counties of Great Britain, to employ the county police in these duties, and the plan is stated by the police authorities to work well;

That out of the 52 counties in England and Wales, the county police are exclusively thus employed in 42 counties, 4 out of the remaining 10 counties being wholly or partly in the Metropolitan district, where the county police are not under the authority of the magistrates; of 34 counties in Scotland, the police are thus employed in 23 counties; and that out of 463 county Inspectors of weights and measures in Great Britain, 396, or 85 per cent., are police officers;

That in Ireland the constabulary officers are exclusively employed in these duties of inspection, for which by law they receive no remuneration;

That as a rule officers of police who are employed as Inspectors of weights and measures in Great Britain get no additional remuneration for the discharge of these duties, their actual expenses only being repaid to them;

That it has been shown to us that, so far as could be ascertained from the returns for 1866, whilst the average population of each police inspector's district was 27,507, and other districts 41,163, the average number of convictions in the year in each district were 5 and 9 respectively;

That whilst on the one hand, in many large and populous districts where the Inspectors were not remunerated for their duties of inspection, either by salary or from a portion of the fines, no conviction whatever occurred from year to year; on the other hand, a great number of convictions occurred in the metropolitan districts, where the informer gets half the penalties, and a large proportion of the convictions were for small deviations in a single weight or measure out of the whole set, with no intention to defraud;

That evidence has been laid before us to show that the practice of giving a portion of the fines to Inspectors is most objectionable to tradesmen who are subject to inspection, and that they are loud in their complaints of the grievous oppression which they allege is caused by this practice and of their being consequently summoned for trivial deviations in their weights and measures;

That although there may be some advantage in granting a portion of the fines on convictions to the Inspectors, as stimulating them in the discharge of their duties, yet this practice is adopted only in few districts of inspection, and many objections exist against it;

That with the view to a uniform, efficient, and satisfactory discharge of the duties of inspection, it appears to us to be indispensable that the duties should be performed under a code of authoritative instructions, to be issued from time to time by a responsible public department;

That we think it also requisite that the control of such department should extend to a cognizance and approval of the appointment and remuneration, as well as the dismissal of every Inspector; and that detailed returns of the inspection exercised and of convictions obtained should be made to the department;

That it appears to us that there are material imperfections in the existing law, inasmuch as no power is given to an Inspector in Great Britain to seize (except in the public streets) even an evidently fraudulent balance, nor to interfere in any way when fraud is practised in dealings with weights, measures, and balances, provided these instruments themselves are correct; and that no difference is made in the provisions for penalties on convictions in the case of fraudulent or merely defective weights, measures, and balances;

We recommend—

(54.) That in all districts of verification of weights and measures, special officers of the police or other competent persons be appointed Inspectors of weights and measures by the before-stated local authorities, and charged with the duties of inspecting weights, measures, and balances, and the detection and prosecution of offences against the weights and measures' laws.

(55.) That every such appointment be subject to the approval of the Board of Trade.

Appendix XII.—*continued.*

(56.) That the Inspectors be liable to suspension or dismissal by the local authorities, with the approval of the Board of Trade, for misconduct, neglect, or inefficient discharge of their duties, or other sufficient cause.

(57.) That such Inspectors be furnished by the local authorities with local standards of weights and measures, duly verified and reverified from time to time, for the comparison of weights and measures.

(58.) That such of the existing Inspectors of weights and measures as the local authorities of the several districts shall think fit, subject to the approval of the Board of Trade, continue to exercise their duties either of inspection or of verification, and be paid such remuneration, by way of salary and not by fees, or a proportion of fines, but including compensation for loss of fees, or of their proportion of fines, as shall be awarded to them by the local authorities, with the approval of the Board of Trade.

(59.) That the local authorities in such districts be empowered to grant such retired or superannuation allowances to Inspectors of weights and measures as they shall think fit.

(60.) That in all districts of inspection where the duties are exercised by the police, the chief officer of police in each district be more immediately charged with and responsible for the duties of inspection of weights and measures, and the custody and care of the instruments of inspection, the actual duties of inspection being performed in the several sub-districts by officers of police acting under his directions, and specially selected for this purpose, such officers being as much as possible relieved from ordinary police duties.

(61.) That the chief officer of police in each such district, or the Inspector charged with these duties, make such returns to the Warden of the Standards in relation to the inspection of weights and measures, and convictions, within his district, in such specified form as shall from time to time be required by the Board of Trade.

(62.) That the local authorities in each district be empowered to award such remuneration to the chief or other officer of police, or other inspector, for the discharge of the duties of inspection of weights and measures, as they shall think fit, with the approval of the Board of Trade; but that it be lawful for the Board of Trade to revoke this approval in case of any neglect of duty in relation to the inspection of weights and measures by such officer.

(63.) That every Inspector of weights and measures be empowered, without any further warrant from any justice than his instrument of appointment, at all reasonable times to enter all shops and other places within his district, where goods are exposed for sale or weighed for transport, and not only to seize and render liable to forfeiture all beams, scales, balances, and other weighing machines not exceeding 5*l.* in value, which appear to be fraudulently unjust, as well as false, defective, or unjust weights and measures, but also if they find that any fraud shall be wilfully committed in the using thereof; and that the several provisions for prevention of fraud contained in sections 14, 15, and 16 of the Irish Weights and Measures Act of 1862, be extended to Great Britain.

(64.) That any person who shall without due authority represent himself to be an Inspector of weights and measures, and shall act as such Inspector, be liable on conviction to a fine not exceeding 5*l.*, or to imprisonment not exceeding two months, as the magistrates shall determine.

(65.) That the county magistrates in Great Britain be empowered to adjudicate upon cases of offences against the weights and measures laws, arising from time to time in boroughs where the inspection of weights and measures is placed under their authority.

(66.) That any county Inspector duly appointed be empowered to exercise his duties of inspection in any city or borough within the county, provided no Inspector be authorised to be appointed for such city or borough.

(67.) That in all informations laid for offences against the weights and measures laws, it be distinctly stated whether the offence be committed "with fraudulent intent," or "with no intent to defraud," and that persons convicted of offences with fraudulent intent, in respect of weights, measures, or balances, or their use, or dealings in connexion therewith, be subject to a greater fine than offenders with no intent to defraud; and that in case of a second conviction with fraudulent intent, the offender be liable to a heavier fine, or to imprisonment not exceeding two months, as the justices may determine.

(68.) That in all cases of convictions with fraudulent intent, or of culpable negligence, the magistrates take the necessary steps for publishing the name, place of abode, and business, offence, and sentence of each person convicted, in one or more of the local newspapers.

(69.) That the duties of inspection which consist of the testing the legality of weights, measures, and balances, be subject to such regulations as shall from time to time be issued by the Board of Trade.

(70.) That no commercial weight, measure, or balance, which may have become defective or incorrect, be mended or adjusted by any Inspector of weights and measures.

(71.) That in cases in which weights, measures, or balances may be found accidentally or trivially defective, without imputation of fraud or culpable negligence, the magistrates be authorised, if they think fit, to dismiss the case without inflicting a penalty.

(72.) That in all cases where stated quantities of any articles of food are made up in bags or parcels ready for sale in shops or public places, they shall have the weight or measure legibly marked upon them, and Inspectors be empowered to require any three of each description of such bags or parcels to be produced before him, and to weigh or measure the same, and if found unjust, to seize them, and inform against the offenders, who, on conviction, shall be liable to a penalty.

(73.) That all proportions of fines and penalties, in connexion with weights and measures, as shall be awarded to the officer informing, be carried to the local funds applicable to the expenses of inspection.

(74.) That all expenses of inspection of weights and measures in the several districts of inspection be paid out of the local funds.

§ VIII.—*Other duties connected with or analogous to the Inspection of Weights and Measures.*

Considering—

That the proposed appointment of separate and distinct officers for performing the duties of verification and inspection will render it necessary to make provision by law for the discharge of other and analogous duties now exercised by the Inspectors;

We recommend—

(75.) That the several provisions relating to the weights and scales used by bakers, and to the weighing of bread, and to the adulteration of bread, &c. contained in the Bread Acts now in force in the United Kingdom, be repealed; and that the several enactments relating to the weights and scales used by bakers, and to the weighing of bread, with the exception of the provision requiring weights and scales to be carried by bakers when delivering bread, be embodied in the proposed Weights and Measures Consolidation Act, and the duties of verification of such weights and scales, and their inspection, including that of the bread sold, be exercised by the Verifiers and Inspectors of weights and measures.

(76.) That the several provisions relating to the adulteration of bread, &c. be embodied in a separate Bill relating generally to the adulteration of food or other articles, when it may be considered how far it is expedient to impose the duties of carrying out the Act in the different localities upon the Verifiers or Inspectors of weights and measures.

(77.) That the existing provisions of law, by which powers analogous to those of inspectors of weights and measures are conferred upon clerks of markets and hay weighers, be similarly dealt with.

(78.) That the same principle be carried out with regard to the existing provisions of law for the sale and delivery of coal, which should be made applicable to the whole of the United Kingdom.

(79.) That the existing provisions of law imposing upon the Inspectors of weights and measures the duties of testing petroleum, require amendment, with a view to establishing a uniform testing apparatus and mode of testing petroleum.

Appendix XII.—*continued.*

§ IX.—*Verification and Inspection of Weights and Measures, &c. in Post Office, Customs, and Excise Departments, and at Canteens in Barracks.*

Considering that it is expedient to set at rest any doubts which may now exist as to the powers of Verification and Inspection of weights and measures, and other instruments for weighing and measuring, which are used in any public department, or under its authority,

We recommend—

(80.) That all weights and measures used by the Revenue Departments of Customs, Excise, and Post Office for regulating charges upon the public be of legal denominations, according to the official standards of the Board of Trade, and be duly verified and stamped from time to time, either by the local Verifiers of weights and measures, or by departmental officers appointed by the authorities of the several departments, for the discharge of this duty.

(81.) That for such purposes the departmental officer of verification be furnished by the authorities of the Customs, Excise, and Post Office Departments with such copies of the standards as they may require, to be duly verified from time to time by the Standards Department of the Board of Trade, within the periods prescribed by law for the reverification of copies of the Standards provided for the local Verifiers of weights and measures.

(82.) That upon the appointment of such officers of verification being notified to the Board of Trade by the departmental authorities, such officers be furnished by the Warden of the Standards with the requisite verification stamps, and with copies of the official instructions of the Board of Trade to Verifiers and Inspectors of weights and measures, with the view of aiding them in the performance of their duties.

(83.) That the periodical inspection and reverification of all weights, measures, and balances, used by officers of the Customs, Excise, and Post Office Departments for regulating charges made upon the public, be carried out by the departmental officer of Inspection and Verification appointed to discharge those duties, under the authority and responsibility of the heads of those departments. As respects the Post Office Department, that this provision apply only to the scales and weights specially constructed for Post Office services only, and supplied by the Postmaster-General; and that all other scales and weights used both for Post Office purposes and for trading purposes by post office keepers be subject to inspection from time to time by the local Inspectors of weights and measures.

(84.) That with a view of checking from time to time the accuracy of the before-mentioned special scales and weights used in post offices, they may be tested by the local Inspectors of weights and measures, but not for the purpose of applying any penal consequences to postal officers. Any defects found in such scales and weights should be reported to the General Post Office, in order that they may be rectified.

(85.) That the local inspectors be specially authorised by law to inspect weights and measures, &c., at canteens in barracks, and to seize all such as may be defective and fraudulent, and take proceedings against the offenders; but that this power be subject to the general instructions of the Board of Trade and to such particular instructions as may be issued, in concert with the War Department.

§ X.—*Proposed Amendments in the Sale of Gas Acts.*

Considering—

That important amendments in the Sale of Gas Act, 1859, were fully considered and agreed upon by a Select Committee of the House of Commons in 1860, but have not since been embodied in an Amending Act; and that we are satisfied from information which has been laid before us, that it is expedient such amendments should generally be carried into effect;

That a short Amending Act was passed in 1860, containing a provision for allowing magistrates in counties the option of adopting the Act of 1859, the effect of which has been to make the Act of 1859 a dead letter throughout a great part of the United Kingdom, so far as regards the inspection of gas meters;

That the grounds of such provision appear in a letter from Earl Cathcart, dated 24th February 1860, which was laid before the House of Commons; but that it appears to us that there is now little force in the objections thus raised, which were based upon the apprehended large expenditure to be defrayed from county rates, and that such objections should no longer stand in the way of the application of a general law, and prevent the establishment of a uniform and efficient system of inspection of gas meters throughout the kingdom;

That with the view of establishing such a system, it is obviously expedient to adopt the several regulations relating to the verification and inspection of weights and measures, as far as they may be properly applicable to gas meters;

That under the provisions of the Act of 1859, accurately verified copies of the gas measuring standards, of a primary character and of similar construction to the official standards, have been supplied at the public expense to the Corporations of London, Edinburgh, and Dublin; and that it is expedient that provision should be made by which the standards thus supplied to the metropolitan cities of Scotland and Ireland may be made more serviceable to the public;

We recommend—

(86.) That the Sale of Gas Act, 1859, and subsequent Acts relating to it, be repealed, and their provisions re-enacted in the proposed Act for amending and consolidating the laws relating to weights and measures, with the following modifications:—

(87.) That such provisions be adopted in every county, and in every city and borough throughout the United Kingdom, where gas is manufactured and sold, under the authority of Parliament, except in such counties in England and Wales in which the magistrates in quarter sessions, or in Scotland the Commissioners of Supply, or in Ireland the Grand Jury, shall determine, by a resolution to be passed within a limited period by a majority of not less than two-thirds of those present, that there are not sufficient grounds for adopting such provisions, a copy of such resolution being laid before the Board of Trade.

(88.) That the local authority over the inspection of gas meters be in all cases exercised by the county magistrates, except in the metropolitan district, where it should remain under the Metropolitan Board of Works, and in such cities and boroughs as Parliament may determine, in respect to the sale of gas, as well as in such cities and boroughs as may be situated in counties in which the local authorities stated in the preceding resolution shall have determined not to adopt the Act, where it should be exercised by the local magistrates.

(89.) That in all such counties where no Inspector of gas meters may have been appointed, and copies of the gas measuring standards provided, the duties of comparing, verifying, and stamping gas meters be exercised by the verifier of weights and measures, who shall be furnished with the requisite gas measuring Standards and other appliances.

(90.) That no copy of the gas measuring standards be legal that thall not have been reverified by the Standards Department within a period of ten years.

(91.) That no copy of the gas measuring standards that shall have been altered or readjusted, after verification by the Standards Department, be legal until it shall have been reverified by the Standards Department.

(92.) That provision be made by law for authorising the Board of Trade, if they should so think fit, to make regulations for the verification at Edinburgh and Dublin, by the chief Verifier of those cities respectively, of copies of the gas measuring standards used by Inspectors in the several local districts of Scotland and Ireland, by comparison with the primary copies deposited at the two metropolitan cities, and under the directions of the Standards Department.

(93.) That upon the verification by the Standards Department of such copies of the gas measuring Standards as may be provided for any new district, the requisite verification stamps for gas meters, bearing the number of the district, be furnished to the Verifier by the Warden of the Standards, without any charge for the same.

(94.) That from and after a specified period from the passing of the Act, all verification stamps for gas meters which have been furnished from the Standards Department for the use of inspectors of gas meters under the existing law, be no longer legal, and

Appendix XII.—*continued.*

be returned to the Standards Department, and that new stamps for verifying gas meters be provided and issued by the Warden of the Standards, at the charge of the Department, to such districts as shall require them, bearing the proper number of the district.

(95.) That all such verification stamps shall be and remain the property of the Board of Trade, who shall be empowered to reclaim them upon sufficient grounds of misuse or otherwise.

(96.) That all such duties of verification and inspection of gas meters be exercised according to instructions and regulations to be issued from time to time by the Board of Trade, and that similar powers and authorities in relation to the construction, and the control and supervision of the verification of gas meters, and to the appointment, duties, and apparatus of the inspectors of gas meters, &c., be extended to the Board of Trade, as in the case of weights and measures.

(97.) That no gas meter be legal that shall not have been reverified and restamped within a period of ten years after being fixed and used.

(98.) That all the regulations for licensing or registering makers of weights and measures, &c., and for stamping such weights and measures with the mark of the maker, be made applicable to makers of gas meters, and to gas meters made and sold by them.

(99.) That in the comparison and verification of gas meters, the verification of their indices or registering apparatus, according to the official instructions of the Board of Trade, be included.

(100.) That every gas meter so compared and verified be marked with the number of lights it is constructed to supply, each light being computed to consume five cubic feet of gas per hour, with a pressure equal to a column of water 0·5 inch high.

(101.) That the fees for testing gas meters be regulated in pursuance of a scale to be notified from time to time by the Board of Trade, according to the number of lights which each meter is constructed to supply.

(102.) That the fees for the separate testing of the indices of gas meters be also regulated by the Board of Trade.

§ XI.—*Powers and Duties of the Board of Trade in relation to the Verification and Inspection of Weights and Measures and Gas Meters.*

Considering—

That as regards the whole of the existing system of verification and of inspection of weights and measures and of gas meters, the great and principal defect appears to us to be the want of an efficient central control to give force and unity to local action, as pointed out in the report of the Select Committee on weights and measures, in 1862;

That without such control and authoritative direction, there can be no adequate security to the public for a uniform administration of the law, or a due compliance with its requirements, nor for the proper discharge of the duties imposed upon the local authorities and officers;

That it appears to us that these defects in the existing system may best be remedied by the requisite control and supervision over the local officers, and the duties discharged by them, being exercised by a responsible public Department, and that this control be extended to the appointment and remuneration of these officers;

That the necessary powers for these objects should be given by law and should include the issue from time to time of authoritative instructions for the guidance and government of the local officers;

That in order to make such control effective and to secure that the official instructions are duly carried out and the duties of the local officers adequately performed, it is in our opinion requisite that supervising public officers should be appointed under the authority of such Department;

That it appears to us to be also expedient for the due protectton of the public, that further provision should be made by law for securing, as far as may be, that all weighing and measuring instruments sold for public use should he properly and justly made, and in accordance with the established regulations;

That for this object and in order to bring all makers of such instruments under the cognizance of a public Department, and render them in some degree responsible for their instruments, it is expedient that every maker and repairer or adjuster of these instruments should be duly registered, and that an annual license duty, payable by means of a stamp upon the annual certificate of registration, should be imposed upon every such maker, and repairer, or adjuster, thus more completely carrying out the recommendation applicable to gas meters, adopted by the Select Committee of the House of Commons, in 1860, on the Bills for amending the Sale of Gas Act;

We recommend—

(103.) That the Board of Trade be charged with such powers in relation to the appointment, remuneration, and duties of Verifiers and Inspectors of weights and measures and of gas meters, as are mentioned in the preceding recommendations.

(104.) That two or more Inspectors of Standards be appointed by the Board of Trade as officers of the Standards Department, with adequate salaries and allowances for travelling expenses; and that they be subordinate to the Warden of the Standards, and report to him from time to time.

(105.) That each official Inspector of Standards be provided with sufficient copies of the official standards, and such other instruments as may be requisite for comparing and verifying the local standards and apparatus in the several districts of verification and inspection of weights and measures. That he proceed from place to place within the district assigned to him, previously giving notice to the Verifier, or the chief officer of police, or other chief Inspector, responsible for the duties of inspection of weights and measures, and of gas meters, to have his standards, balances, and other apparatus ready for inspection at such place and time as may be fixed from time to time by such official Inspector, so that each district of verification and of inspection may be visited at least once in each year.

(106). That it be the duty of the official Inspector of Standards to see that the office accommodation of each Verifier, and the standards, balances, and other apparatus, are fit and proper for the execution of his duties, as well as the standards and other instruments of the Inspectors of weights and measures and of gas meters; and to ascertain, so far as lies in his power, that the provisions of the weights and measures laws, and the official instructions of the Board of Trade for carrying out the law, are duly complied with by such Verifier and Inspector.

(107.) That in case of any of the local standards being found to be defective beyond an allowance to be fixed and determined from time to time by the Board of Trade, the official Inspector require them to be immediately adjusted and duly reverified by the Standards Department, provided he deem them fit to be corrected as standards; and that if he find them to be defective or damaged so that they cannot be made fit standards, he at once condemn them and cancel the official stamp upon them, so that they can no longer be used as standards.

(108.) That in all cases after due notice shall have been given to the Verifier or chief Inspector by the official Inspector of Standards, that any of the standards in his custody are defective or unfit for standards, and such standards shall not have been duly adjusted and verified, or replaced with new standards duly verified, after the expiration of three months from the date of such notice, the Board of Trade be empowered, upon the report of the Warden of the Standards, to direct the necessary steps to be taken for publishing in the local newspapers a notice that the district of verification or inspection is not furnished with legal standards of such denominations.

(109.) That in all cases in which such offices, balances, or other apparatus, other than standards, shall be found by the official Inspector to be unfit for the proper execution of the duties of verification or inspection, he certify the same in writing to the Verifier or chief Inspector, and require that the necessary steps be taken for placing them in fit condition, and that he report accordingly to the Warden of the Standards; that he also require such Verifier or chief Inspector, within one calendar month, to report to the Warden of the Standards what steps shall have been taken in pursuance of the requisition of the official Inspector; and in the event of such steps not being considered satisfactory by the Board of Trade when reported by the Warden of the Standards, the Board be empowered to authorise him to require the local authorities at once to direct the

Appendix XII.—*continued.*

necessary steps for placing such offices, balances, or other apparatus in fit and proper condition.

(110.) That authoritative instructions be from time to time issued by the Board of Trade to the several Verifiers of weights and measures, and Inspectors of gas meters, with the view of ensuring uniformity of action in the execution of their duties, and due compliance with the laws as construed by the highest legal authorities.

(111.) That authoritative instructions be also issued to the chief officer of police or other chief Inspector in the several districts of inspection of weights and measures, with the view of ensuring uniformity in the mode of testing the legality of weights, measures, and balances.

(112.) That such instructions comprise all necessary directions for the form, material, and mode of construction of the local standards, together with the balances, stamps, and other apparatus to be used by Verifiers and by Inspectors of weights and measures, and of gas meters, and for their preservation and use; and include also the scale of tolerance of errors in the official comparison and verification of local Standards.

(113.) That such instructions also comprise directions for the form, material, and mode of construction of all weights, measures, balances, weighing machines, and gas meters to be stamped by the Verifiers of weights and measures, and Inspectors of gas meters, and legalised for use.

(114.) That the Board of Trade be empowered to make regulations from time to time for comparing and verifying with the official Standards all weights and measures for scientific purposes or otherwise, in which special accuracy is required, and for charging such fees as shall be fixed by them for the comparison and verification of such weights and measures; but that no fee be charged for the official verification of local Standards.

(115.) That the Board of Trade be also empowered to make such special regulations as they shall deem fit for the testing of large station or other gas meters constructed to pass more than 10 cubic feet of gas at one revolution or complete action of the meter.

(116.) That all instructions and other regulations authorised by law to be issued and made by the Board of Trade in relation to the verification and inspection or otherwise of weights and measures and other instruments, be published in the London, Edinburgh, and Dublin Gazettes, and copies laid before Parliament not later than in the next session after the date of their issue.

(117.) That the Board of Trade be authorised to require the Verifiers and chief officers of police or other Inspectors of weights and measures and of gas meters to make from time to time such returns to the Warden of the Standards in relation to the execution of their duties of verification and of inspection, and in such specified form, as the Board of Trade shall think fit.

(118.) That every maker, repairer, or adjuster of weights, measures, and balances, or weighing machines, and of gas meters, be duly registered in the Standards Office before the 31st January in every year, and a certificate of registry issued to him by the Warden of the Standards, bearing a 5*l.* stamp.

(119.) That the distinctive mark of every such maker be approved and recorded at the Standards Office before being used.

(120.) That such mark be required to be stamped upon every weight, measure, balance, or weighing machine, or gas meter, before it is sold or used, under penalty.

(121.) That a penalty be imposed by law upon any maker who shall mark any such weight, measure, balance, or weighing machine, or gas meter, without being duly registered.

(122.) That a similar penalty be imposed upon any fraudulent imitation of the mark of such registered maker.

§ XII.—*Other Provisions.*

Considering—

That it is in our opinion requisite that the important changes recommended by us to be made in the existing laws and practice relating to weights and measures should be introduced into Parliament on the responsibility of the executive Government and supported by their authority;

That it has been proved to us that powers have been frequently granted by Parliament in local and personal Acts, to corporations and persons, which powers are inconsistent with the provisions of the general laws relating to the verification and inspection of weights and measures and of gas meters, and tend to prevent the establishment of a uniform and efficient system;

We recommend—

(123.) That it is expedient that a Bill be brought into Parliament by the Government, at the earliest period, to amend and consolidate the laws relating to weights and measures and their standards, and to the sale of gas, and for carrying into effect the preceding recommendations.

(124.) That provisions be also contained in this Bill for carrying out the recommendations of the Commission in their Second Report, relating to the permissive introduction of the metric system of weights and measures into this country, and in their Third Report, on the abolition of Troy weight.

(125.) That all provisions of former Acts which relate to the standards of weights and measures, and to the legalisation, verification, and inspection of weights and measures and gas meters, be repealed, such of the provisions as are not inconsistent with the preceding recommendations being embodied in the amending and consolidating Bill; and that the powers of verification and inspection of weights and measures granted by such Acts, or by charter, custom, or otherwise, shall cease and determine.

(126.) That provision be made for granting such compensation to the Founders' Company for any loss which may be sustained by them through abolition of their ancient rights of verifying brass weights, as the Commissioners of Her Majesty's Treasury shall think fit.

(127.) That tables of all the denominations of legal weights and measures be appended in a schedule to the Bill.

(128.) That the Executive Government take the necessary steps for the adoption of such means as may tend effectually to prevent the provisions of the general law for establishing a uniform system of verification and inspection of weights and measures and of gas meters from being defeated by clauses subsequently introduced into local Acts.

H. W. CHISHOLM,
Warden of the Standards.

Standards Department,
24th January 1870.

APPENDIX XIII.

PAPER DELIVERED BY THE WARDEN OF THE STANDARDS.

Copy of Indian Weights and Measures Act, 1870 (for the adoption of the Metric system in British India).

The following Act of the Governor General of India in Council received the assent of His Excellency the Governor General on the 1st April 1870, and was promulgated for general information in the *Gazette of India*, 2nd April 1870:—

Act No. XI. of 1870.

THE INDIAN WEIGHTS AND MEASURES ACT, 1870.

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AN ACT TO REGULATE THE WEIGHTS AND MEASURES OF BRITISH INDIA.

Preamble.

Whereas it is expedient to provide for the ultimate adoption of an uniform system of weights and measures throughout British India: It is hereby enacted as follows:—

I. *Preliminary.*

Short title. Local extent.

1. This Act may be called "The Indian Weights and Measures Act, 1870," and extends to the whole of British India.

II. *Standards.*

Standard of weight.

2. The primary standard of weight shall be called a ser and shall be a weight of metal in the possession of the Government of India, which weight, when weighed in a vacuum, is equal to the weight known in France as the kilogramme des archives.

Standard of length.

3. The primary standard of length shall be called a metre, and shall be the distance between the marks at the ends of a rod of metal in the possession of the Government of India, which distance, when measured at the temperature of melting ice, is equal to the measure of length known in France as the mètre des archives.

Units of weight and measurement.

4. The units of weight and measurement shall be—

for weights, the said ser;

for measures of capacity, a measure containing one such ser of water at its maximum density, weighed in a vacuum;

for measures of length, the said metre;

for measures of area, the square metre;

for measures of solidity, the cubic metre.

Special weights and measures to be authorised.

5. The Governor General in Council may, from time to time, by notification in the *Gazette of India*, declare the magnitude and denominations of the weights and measures, other than the said units, to be authorised under this Act:

Provided that every such weight or measure shall be an integral multiple or integral sub-multiple of one of the units aforesaid.

The Governor General in Council may, in like manner, revoke such notification.

Unless it be otherwise ordered in any such notification, the sub-divisions of all such weights and measures shall b expressed in decimal parts.

Districts how defined.

6. The Governor General in Council may, from time to time, by notification in the *Gazette of India*, define the limits of districts for the purposes of this Act.

Sub-districts how defined.

The Local Government may, from time to time, by notification in the official Gazette, define the limits of sub-districts for the purposes of this Act.

Primary standards to be provided.

7. The Governor General in Council shall provide, in such manner and for such districts as the said Governor General in Council shall direct, proper primary standards and sets of the said authorised weights and measures.

Such standards shall for the purposes of this Act be deemed the standards for such districts.

Local standards to be provided.

8. The Local Government shall provide, in such manner and for such sub-districts as the Local Government shall direct, copies of such of the said authorised weights and measures as shall be necessary to serve as local standards in such sub-districts.

Such local standards shall be deemed correct until they are proved to be otherwise.

Appendix XIII.—*continued.*

III. *Use of new Weights and Measures.*

Use of new weights and measures in Government offices, &c.

9. Whenever the Governor General in Council considers that proper standard weights and measures have been made available for the verification of the weights and measures to be used by any Government office or municipal body or railway company, the Governor General in Council may, by notification in the *Gazette of India*, direct that, after a date to be fixed therein, all or any of the weights and measures authorised as aforesaid shall be used in the dealings and contracts by such office, body, or company,

General use of new weights and measures of capacity.

10. The Governor General in Council or the Local Government, with the previous assent of the Governor General in Council, may, by notification in the official Gazette, direct that, after a date to be fixed therein, all or any of the weights and measures of capacity authorised as aforesaid shall, in every district or sub-district therein mentioned, be used in the dealings and contracts of all persons engaged in business or trade, or of the persons engaged in any specified business or trade;

and may in like manner from time to time alter or revoke such direction;

Provided that no such notification shall issue until proper standard weights and measures have been provided for such district or sub-district.

Contracts by weight or measure.

11. After the date fixed in any notification under section nine or section ten, all dealings and contracts had and made by the officers, bodies, companies, or persons mentioned or referred to in such notification, for any work to be done or goods to be sold or delivered by weight or measure of capacity, length, area, or solidity shall, in the absence of a special agreement to the contrary, be deemed to be had and made according to the weights and the measures of capacity, length, area, or solidity, as the case may be, directed in such notification to be used by such officers, bodies, companies, or persons.

IV. *Wardens.*

Appointment of wardens.

12. The Governor General in Council (as regards the said primary standards and sets of authorised weights and measures) and the Local Government (as regards the said local standards) shall appoint wardens for the custody of the said standards and sets of authorised weights and measures.

The Governor General in Council or the Local Government, as the case may be, may at any time suspend or remove any such warden and appoint another person in his stead.

Periodical verification of weights, measures, and balances.

13. All officers of Government, municipal officers, officers and servants of railway companies, and persons engaged in businesses or trades, shall, so far as they are required by the rules made under section twenty-seven, submit to a warden for verification the weights, weighing machines, and measures used by them under the provisions of section nine or section ten, and the balances used by them in their dealings, at such times not oftener than once in two years, and pay for such verification such fee as the said rules shall prescribe.

Warden to verify and correct weights, measures, and balances.

14. Every such warden (so far as he is required by the rules made under section twenty-seven) shall verify, and shall, if requested so to do, correct all weights, weighing machines, and measures purporting to indicate weights or measures authorised under this Act, and all balances which are brought to him to be verified or corrected, and which appear to him fit for verification or correction.

When such weights, machines, measures, or balances are found or made correct and in conformity with the requirements of this Act, he shall certify such correctness and conformity by stamping, engraving, or branding them with the proper mark.

May refuse to verify or correct things unfit.

15. The warden may deface, or render incapable of use, or refuse to verify, correct, or mark anything so brought, which appears to him unfit for verification or correction.

To institute and conduct prosecutions.

16. All prosecutions under this Act shall be instituted and conducted by a warden, or by such person as in each case the warden may appoint in this behalf.

Search for weights, measures, and balances not verified or not correct.

17. On the application of a warden, any officer in charge of a police station, and in a Presidency town, any inspector or superior officer of police, may enter any premises or shop within the limits of such station or town for the purpose of inspecting or searching for weights, weighing machines, and measures kept for use under the provisions of section nine or ten, and for the purpose of inspecting or searching for the balances kept for use in the dealings of the person occupying such premises or shop.

If such officer find in such premises or shop any such weight, machine, measure, or balance which shall not be verified under the provisions herein contained, or in conformity with the requirements of this Act, he may seize the same and shall forthwith give information of such seizure to the magistrate having jurisdiction.

Exercise of any of warden's powers.

18. Any of the powers and duties conferred and imposed by this Act on a warden may be exercised and performed by any other officer whom the Local Government may, from time to time, appoint.

V. *Penalties.*

Commencement of penal sections.

19. The Governor General in Council or the Local Government with the previous assent of the Governor General in Council, may, by notification in the official Gazette, fix the date from which all or any of the provisions of sections twenty, twenty-one, twenty-two, and twenty-four shall come into force in respect to any district or sub-district; and the said sections shall be of no effect in such district or sub-district except in so far as they shall have so come into force.

Sale of weights, measures, and balances not verified.

20. Whoever sells any weight, weighing machine, or measure, purporting to indicate any weight or measure authorised under this Act and directed to be used under section nine or ten, or any balance, which weight, machine, measure, or balance shall not have been verified under the provisions herein contained, shall, for every such sale, be liable to a fine not exceeding five rupees,

and in default of payment thereof, to imprisonment for a term not exceeding a week.

Use of weights, measures, and balances not verified but correct.

21. Whoever uses or has in his possession for purposes of business or trade any weight, weighing machine, or measure purporting to indicate any weight or measure authorised under this Act, and directed to be used by him under section nine or ten, or any balance, which weight, machine, measure, or balance being correct and in conformity with the requirements of this Act, shall not have been verified under the provisions herein contained, shall, for every such thing so used or had in possession, be liable to a fine not exceeding five rupees,

and in default of payment thereof to imprisonment for a term not exceeding a week.

Use of weights, measures, and balances not verified and not correct.

22. Whoever uses or has in his possession, for purposes of business or trade,

any weight or measure other than a weight or measure directed to be used by him under section nine or ten, or any machine for the purpose of indicating any weight other than a weight so directed to be used,

or any weight, weighing machine, or measure, purporting to indicate any weight or measure authorised under this Act, and directed to be used by him under section nine or ten, or any balance, which weight, measure, machine, or balance has not been verified under this Act and is not correct, or is not in conformity with the requirements of this Act,

shall, for every such offence, be liable to a fine not exceeding ten rupees,

and in default of payment thereof to imprisonment for a term not exceeding a fortnight:

Proviso as to weights and measures of the United Kingdom.

Provided that nothing herein contained shall render it penal to use or to have in possession for purposes of business or trade any weight or measure in accordance with the standards of weights and measures established throughout the United Kingdom of Great Britain and Ireland.

Convictions under sections 21 and 22, how limited.

23. No person shall be convicted under section twenty-one or section twenty-two unless the warden shall have proved that weights or measures verified under this Act, and suitable for the purposes of the business or trade of such person, were publicly offered for sale and procurable at a reasonable price in the district or sub-district in which the offence was committed, and at or immediately before the time when the offence was committed.

Failure to submit for verification.

24. Whoever fails to submit for verification under section thirteen any weight, weighing machine, or measure used by him under the provisions of section nine or section ten, or any balance used by him in his dealings, shall be liable to a fine not exceeding fifty rupees,

and in default of payment thereof to imprisonment for a term not exceeding one month.

Disposal of things in respect to which convictions take place.

25. A magistrate convicting any person under section twenty, twenty-one, twenty-two, or twenty-four of this Act, or under chapter XIII. of the Indian Penal Code (*Of offences relating to weighing and measuring*), may order the thing in respect to which the conviction took place to be brought before a warden, to be dealt with under the provisions of sections fourteen and fifteen:

Provided that, if the magistrate consider such thing unfit for verification or correction, he may, instead of ordering it to be brought before a warden, cause it to be defaced or rendered incapable of use.

Counterfeiting warden's marks.

26. Whoever knowingly counterfeits any mark used by a warden under section fourteen, shall be punished with

Appendix XIII.—*continued.*

imprisonment for a term which may extend to three years, and shall also be liable to fine.

VI. *Miscellaneous.*

Power to make rules.

27. The Governor General in Council may, from time to time, make rules consistent with this Act for regulating the following matters:—

(*a.*) The appointment of wardens.

(*b.*) The guidance of wardens in all matters connected with the performance of their duties.

(*c.*) The provision, replacement, custody, and use of the standards.

(*d.*) The method of verifying local standards and weights, weighing machines, and measures authorised under this Act, and balances, and of certifying such verification.

(*e.*) The errors which may be tolerated in weights, weighing machines, and measures authorised under this Act, and in balances.

(*f.*) The shapes, proportions, and dimensions to be given to weights, weighing machines, and measures authorised under this Act, and to balances, and the materials of which they may be made.

(*g.*) The marking on weights and measures authorised under this Act of their several denominations.

(*h.*) The conditions under which Government offices, municipal bodies, railway companies, and persons engaged in businesses or trades, shall be subject to inspection and verification of the weights, weighing machines, and measures authorised under this Act, and of the balances used or sold by them.

(*i.*) The fees to be paid for verifying, correcting, and certifying the verification of weights, weighing machines, and measures authorised under this Act, and of balances.

Publication of rules.

28. Such rules shall be published in the *Gazette of India*.

Commencement of rules.

And the Governor General in Council, or the Local Government with the previous assent of the Governor General in Council, may, by notification in the official Gazette, declare that, from and after a day to be named therein, all or any of the said rules shall come into force in respect of any Government office, municipal body, or railway company, or of the persons engaged in any specified business or trade in any district or sub-district, and, thereupon, to the extent specified in such notification, such rules or rule shall have the force of law.

Recovery of fines and fees.

29. All fines imposed under this Act may be recovered if for offences committed outside the local limits of the towns of Calcutta, Madras, and Bombay, in the manner prescribed by the Code of Criminal Procedure, and if for offences committed within those limits, in the manner prescribed by any Act regulating the police of such towns in force for the time being.

All fees payable under this Act shall be recoverable as though they were fines.

Tables of equivalents.

30. The Local Government may, from time to time, prepare tables of the equivalents of weights and measures, other than those authorised under this Act, in terms of the weights and measures so authorised, and the equivalents so stated, after notification in the local official Gazette, shall be deemed the true equivalents.

WHITLEY STOKES,
Secy. to the Council of the Govr. Genl.
for making Laws and Regulations.

APPENDIX XIV.

PAPER DELIVERED BY THE WARDEN OF THE STANDARDS.

COPY of REPORT of the SELECT COMMITTEE of the CANADIAN SENATE on the subject of ESTABLISHING an UNIFORM INTERNATIONAL DECIMAL SYSTEM of MEASURES, WEIGHTS, and COINS, and to report how far such a system can be advantageously applied to the Measures, Weights, and Coins of this Dominion.

The Senate,
Monday, 21 March 1870.

The Honourable Mr. Ryan moved, seconded by the Honourable Mr. Allan,

That a Select Committee be appointed to inquire what steps have been taken, and what progress has been made in the United Kingdom of Great Britain and Ireland, towards establishing an uniform international decimal system of Measures, Weights, and Coins, and to report how far such a system may be advantageously applied to the Measures, Weights, and Coins of this Dominion.

After debate.

The question of concurrence being put thereon, the same was resolved in the affirmative, and it was,

Ordered, That the said Committee be composed of the Honourable Messrs. Ryan, Allan, Anderson, Letellier de St. Just, Odell, Macpherson, Ferrier, Wilmot, Ritchie, Sanborn, and McMaster, to meet and adjourn as they please.

(Attest) J. F. TAYLOR,
Clerk of the Senate.

The Senate,
3 May 1870.

The Honourable Mr. Ryan, from the Select Committee appointed to inquire what steps had been taken, and what progress has been made in the United Kingdom of Great Britain and Ireland, towards establishing an uniform international decimal system of measures, weights, and coins, and to report how far such a system may be advantageously applied to the measures, weights, and coins of this Dominion, presented their Report.

Ordered, That it be received, and

The same was then read by the Clerk, as follows:—

The Senate Committee Room,
29 April 1870.

The Select Committee appointed to inquire what steps have been taken and what progress has been made in the United Kingdom towards establishing an uniform international decimal system of measures, weights, and coins, and to report how far such a system may be advantageously applied to the measures, weights, and coins of this Dominion, now beg leave, in obedience to the order of reference of the twenty-first day of March last, to report as follows:—

The subject of weights and measures first occupied the attention of your Committee, and they find that two systems are at present legalised and prevail in the United Kingdom, viz., the Imperial which is non-decimal, and the Metric which is decimal.

The origin of the Metric system in Europe dates as far back as the reign of Louis XIV., when the inconvenience and confusion arising from the variety of weights and measures in France were so strongly felt that a Royal Commission was appointed to investigate the question and report on some suitable standard. In 1790, M. Talleyrand presented a report on the uniformity of weights and measures, and it was decided that the co-operation of England should be invited in establishing an international

Appendix XIV.—*continued.*

system. Political complications, however, arose which at the time prevented the realisation of this generous proposal; but the fundamental principle of the Metric system, as then established, is that it should be international. After a lapse of nine years a standard metre and standard kilogram were approved by the Corps Legislatif, and have ever since been preserved in the archives of the State at Paris. It was not, however, until so late as the year 1837 that the Metric system was conclusively adopted in France. In that year the Legislative Chambers, moved by numerous petitions, enacted that on and after the 1st January 1840, all weights and measures of any other standard or denomination than those of the Metric system should be illegal. From this period upwards of ten years had elapsed, when, consequent on the establishment of universal exhibitions—inaugurated by that of London in 1851, which was followed by that of Paris in 1855—the attention of scientific and philanthropic, as well as practical, men of business was directed to this subject, and the jurymen and commissioners of the latter exhibition drew up a declaration, the spirit of which is well exemplified in the following concluding recommendation:—"They consequently deem it their duty earnestly to recommend to "the consideration of their respective Governments, and "of enlightened individuals, friends of civilisation, and "advocates for peace and harmony throughout the world, "the adoption of an uniform system of weights and "measures, computed decimally both in regard to its "multiples and divisions, and also in regard to the "elements of all the different units."

Action was also taken by the statistical congresses assembled in Brussels and in Paris in 1853 and 1855 in favour of international uniformity, and subsequently in September 1855, an international association was formed, whose objects are expressed in the following extract from their proceedings:—

"The undersigned have determined to form an associa"tion composed of members chosen from the different "civilised nations, who shall engage to devote themselves "each in his own country by means of committees corre"sponding with one another, to the establishment, in all "civilised countries, of an uniform decimal system of "weights and measures, and, as far as possible, of "moneys."

Amongst the branches of this association formed in different countries, the most active from the commencement has been the British. After mature deliberation, this association decided that the metre, with its decimal system, is the best unit of length, and has since strenuously advocated its introduction, and mainly contributed to place it in the position which it now holds in the United Kingdom, where nearly 60 per cent. of the total export and import trade of the country is carried on with people using the Metric system.

In the year 1835, the Imperial system of weights and measures was established by law in England. Since then no other system was legalised until the 29th July 1864, when, by Act of Parliament, 27 & 28 Vict. c. 117, the use of the Metric system was made *permissive;* and it is now, conjointly with the Imperial system, in use throughout the United Kingdom.

The preamble of this Act (which Act being very short, and, at the same time, containing valuable information relative to the Metric system, is given at length in the Appendix to this Report) sets forth that for the promotion and extension of the internal as well as the foreign trade of the United Kingdom, and for the advancement of science, it is expedient to legalise the use of the Metric system of weights and measures.

Since the passing of this Act, there has not been any further legislation on this subject in the United Kingdom, but a Royal Commission has borne testimony to the progress of public opinion in favour of the Metric system of weights and measures, and to its increasing use in scientific researches, and in the practice of accurate chemistry and engineering construction. The Commissioners, with the Astronomer Royal as chairman, also stated their opinion, in a Report bearing date the 3rd of April 1869, that the law should provide, and that facilities should be afforded by the Government, for the introduction and use of the Metric weights and measures in the United Kingdom, and that for this object, Metric standards should be legalised, and verified copies of them should be provided for general reference.

There has been a subsequent Report from the same Commission, dated 1st February 1870, but this has reference solely to Troy weight, still partially in use, but the abolition of which is strongly recommended.

In their Report of 3rd April 1869, the Royal Commissioners base their conclusions in favour of the Metric system upon several considerations, one of which is the general adoption of this system "in many countries, both "in Europe and other parts of the world, and more "recently in the North German Confederation and in the "United States of America." In support of this important statement, your Committee deem it relevant to state that the Metric system has already been adopted, and is in use either wholly or in part, in countries whose united population amounts to upwards of 400,000,000, as will be seen by the following tables.

Countries in which the metric system has been wholly adopted.

	Population.
France with Algiers	40,500,000
Belgium	5,000,000
Netherlands and Colonies	23,000,000
Italy	24,000,000
Papal States	700,000
Spain and Colonies	21,000,000
Portugal and Colonies	8,000,000
Greece	1,200,000
Mexico	8,000,000
Chili	1,600,000
Brazil	8,000,000
New Granada	2,000,000
Other South American Republics	3,000,000
	146,000,000

Countries in which the metric system has been partly adopted.

	Population.
Switzerland	2,500,000
Hanse Towns	500,000
Denmark	3,000,000
Austria	37,000,000
British India	140,000,000
	183,000,000

Countries where it is permissive.

United Kingdom	29,000,000
United States of America	31,000,000
Prussia and North Germany	30,000,000
	90,000,000

On June 13th, 1868, the North German Parliament passed an Act adopting the Metric system, and declaring its use permissive from 1st January 1870, but compulsory on and after 1st January 1872.

Between many of the above-named countries and Canada a large and growing business already exists, and it seems desirable that the system upon which their computations of the bulk and weight of merchandise are founded, should be understood and put in practice in this Dominion.

Incidentally connected with the subject referred to your Committee, is the want of uniformity existing in the weights and measures of the four Provinces which compose this Federation; and it may not be irrelevant to point out some of the omissions and discrepancies which characterise the statutes of Upper Canada, Lower Canada, New Brunswick, and Nova Scotia, by which our weights and measures are still regulated.

And first it may be noticed that no common Standards of weights and measures are established, nor are any means prescribed for ascertaining whether or not the old provincial Standards agree with or differ from each other, or to whose custody they are, or should in future be, committed.

Again, certain old English measures of capacity, both dry and liquid, *which have long since been abolished in the United Kingdom*, are still in use and are legal measures in parts of the Dominion. Of these the following instances may be cited:—

1st. The old English wine gallon, six of which are not quite equal to five of the Imperial gallon now in use in England.

2nd. The old English *Winchester* bushel, which is less, in the proportion of 32 to 33, than the Imperial bushel in England.

The following tabular statement exhibits certain discrepancies in stating the legal weight of a bushel of our

Appendix XIV.—*continued.*

staple grains and seeds, as well as of other articles of produce, which the laws of the various Provinces sanction.

	Ontario and Quebec.	Nova Scotia.	New Brunswick.
	lbs.	lbs.	lbs.
Wheat	60	60	60
Indian corn	56	58	60
Rye	56	56	56
Peas	60	—	56
Barley	48	52 or 48	50
Oats	34	34	36
Beans	60	—	56
Clover seed	60	—	56
Timothy seed	48	—	40
Buckwheat	48	—	50
Potatoes and turnips	60	60	56
Carrots, parsnips, beets, and onions		40	
Flax seed	50	—	56
Hemp seed	44	—	56
Blue grass seed	14	—	56
Castor beans	40	—	56
Salt	56	—	—
Dried apples	22	—	—
Dried peaches	33	—	—
Malt	36	39	—

NOTE.—In Nova Scotia, a bushel of foreign barley must weigh fifty-two pounds—but a bushel of barley the produce of the Province need only weigh forty-eight pounds.

In *Quebec*, it is provided that coals shall be sold by the chaldron or bushel, and that the chaldron shall contain six *Imperial Winchester* bushels, a measure which, it is believed, does not exist.

In *Nova Scotia*, the law defines the weight of a ton of coals as 2,240 lbs. avoirdupois.

In *New Brunswick*, coals are, by law, sold per ton weight, and the ton is fixed at 2,000 lbs. avoirdupois.

In *Ontario*, the ton weight, without any reference to coals, is fixed at 2,000 lbs. avoirdupois.

In *Lower Canada*, now *Quebec*, the old measures of the "*arpent*," the "*minot*," and the Paris foot, though obsolete in France, are still in use; and as the *arpent* is smaller than the English acre, and the *minot* somewhat larger than the bushel, it is clear that misconceptions may readily arise as to the comparative value and productiveness of land in Lower Canada estimated on this basis, and that even statistical returns, without great care on the part of those who furnish as well as those who collect them, may be stated erroneously and to the disadvantage of that Province as compared with others where the English statute acre and the bushel are alone in use.

In view of all these circumstances your Committee are of opinion that no time should be lost in establishing by law an uniform system of weights and measures throughout the Dominion. The duty of initiating legislation on a subject of such general importance necessarily devolves upon the Government; and your Committee are of opinion that another session should not be allowed to pass without a comprehensive measure being submitted to Parliament.

With regard to the Metric system, your Committee consider that it is excellent in principle, simple in its construction, and capable of being acquired with great facility, and as such they strongly recommend its introduction in Canada. As, however, so large a proportion of the trade of this country is carried on with Great Britain, your Committee suggest that her example may be safely followed, and that the Metric system may, as in England, be made *at first permissive*, and be adopted, as there, conjointly with her system of *imperial* weights and measures. This course would secure an uniform system of weights and measures for the various Provinces of this Dominion, and at the same time in conformity with that of the mother country, an object much to be desired.

In contemplation of the early adoption of the Metric system, and with a view that the youth of the country be made acquainted with it, your Committee would call the attention of the House to the propriety of suggesting to the Government the importance of causing this system to be taught in all schools over which they have control directly or indirectly. It is simple, easily learned, and not readily forgotten; and young men instructed in it will thus acquire additional facility in understanding the trade with countries where this system prevails exclusively. If this suggestion meet the approval of the Government, a knowledge of the Metric system might also with advantage be required on the part of candidates for the Civil Service.

The attention of your Committee was next directed to the subject of an uniform international system of coins.

In 1867 the British Government was invited by the French Government to depute Commissioners to attend a Conference at Paris of representatives of various States, for the purpose of deliberating upon the best means of securing a common basis for the adoption of a general international coinage.

The Lords of the Treasury accordingly instructed the Master of the Mint and an officer of their Department to attend the Conference.

These delegates reported that the Conference had agreed to recommend—

1st. The adoption of a single gold standard.

2nd. The adoption of $\frac{9}{10}$ as the proportion of fine gold in the coins.

3rd. That all gold coins thereafter struck in any of the countries, parties to the proposed convention, should be either of the value of 5 francs or multiples of that sum.

4th. That a gold coin of the value of 25 francs should be struck by such countries as prefer it, and be admitted as an international coin.

A Royal Commission was subsequently issued, appointing Commissioners to examine and report upon the recommendations of this International Monetary Conference.

The Commissioners reported favourably as to the two first of those recommendations, but not so favourably as to the two last.

In the course of their Report they say: "We entertain "no doubt that an uniform system of coins, bringing into "harmony the various standards of value and moneys of "account, alike in their higher denominations and their "lower sub-divisions, as well as an uniform system of "weights and measures, would be productive of great "general advantage." At the same time, they state grounds on which, in their opinion, with a view to the general interest of the commerce of the world, the English sovereign and pound might form a convenient basis for an international currency. But their principal reason for not recommending that the United Kingdom should merely adopt a gold coin of the value of 25 francs, to be substituted for the sovereign, was that such a measure would only be a partial one, and that by any change short of a complete assimilation of the currency of moneys of account as well as of coins, all the evils of a change in the value of the pound would be incurred, while the advantages by which it is anticipated that those evils would be compensated would not be attained.

Since the 25th July 1868, when that Report was dated, some progress has been made by the Governments of England and France towards obtaining the much desired object of an international coinage by establishing complete equality of value between the sovereign and the 25-franc gold piece, which it is proposed to coin in France.

The following extracts from a speech of the present Chancellor of the Exchequer, delivered in the British House of Commons on the 6th August 1869, will best explain how the question then stood. After alluding to the prospect of France giving up her silver standard and adopting a single gold standard, Mr. Lowe said,—

"The French are proposing to coin a 25-franc gold piece —five francs more than the Napoleon. That would be less in value than the sovereign by 22 centimes, or about 2*d*. If we were about to impose a seigniorage of about 1 per cent., or 0·993 of a grain, and take gold to that amount from the coin, our sovereign would be identical with the 25-franc piece. It would still remain as a current coin in this country of exactly the same value as now, and it would have the additional advantage that it would be identical in value with the 25-franc piece. But, in order that that might be done, France would have to make a sacrifice on her part. I forget the mintage she charges; I believe it is between a fifth and a fourth per cent. If she could be prevailed upon to make it one per cent., we should have solved the problem, as far as England and France are concerned, of an international coinage. The operation would be performed by modifications of the same principle —France would, as now, take payment in money, England would deduct from her coin, and thus equality would be obtained. It is singular to remark what a number of coins in the world approach one another in value; the Spanish doubloon, the Prussian Frederick, the half-eagle of America, approach exceedingly near in value to each other, and I think it very possible, if France would meet us in this way—should Parliament be induced to look at the matter from the point of view I have put it—we might come to some arrangement by which we should get the blessing of one coinage throughout Europe, a great step in civilisation. These are the remarks I had to make to the House. They

Appendix XIV.—*continued.*

are not given with any great confidence in my own opinion. All I am anxious to do before we separate is to give honourable gentlemen and the country at large a subject for consideration. It appears to me that the subject is not so difficult as might be supposed; and that by a single measure we may secure to ourselves the great benefit of saving all the expenses incurred on our own gold coinage without imposing those expenses on any one else, and at the same time of striking a coin which would have the advantage of an international circulation."

Your Committee have reason to believe that recently further progress has been made in negotiating with France, but no legislation had taken place upon the subject in the Parliament of the United Kingdom to the date of the latest information from England in the possession of your Committee.

Your Committee have had the satisfaction of ascertaining from the Honourable the Minister of Finance, that the Canadian silver coins now in course of preparation will be of a decimal character, and of such denominations and intrinsic values as always to serve for tokens of sub-divisions of the proposed twenty-five-franc piece, if established as an international standard, as well as of the sovereign and of the five-dollar gold piece when assimilated to the twenty-five-franc piece.

In Nova Scotia, as is well known, the values placed by law on the British sovereign and the British shilling are $4.85 and 25 cents respectively, so that the currency of Nova Scotia is at present suited for the decimal system, and the coins in circulation there bear a decimal relation to each other.

By the Act passed on the 22nd May 1868 (31 Vict. cap. 45), Canada has placed herself in a position to adapt her currency to an international decimal system of coinage, so soon as the great commercial nations of Europe and America have agreed to establish such a system, an event which your Committee hope may not be far distant, as they fully concur in the opinion of the Royal Commissioners already cited that such a system would be productive of great general advantage.

All which is respectfully submitted.

T. Ryan, Chairman.

APPENDIX.

27 & 28 VICTORIÆ.

Cap. CXVII.

An Act to render permissive the use of the Metric System of Weights and Measures.

[29th July 1864.]

(*Copy of this Act and Schedule follows.*)

LONDON:
Printed by George E. Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty.
For Her Majesty's Stationery Office.

Weights & Measures.

[C.179] Fourth Annual Report of the Warden of the Standards on the proceedings & business of the Standard Weights and Measures Department of the Board of Trade, for 1869-70.

The above being an Octavo paper is bound with other 8vo. papers in the Volume) lettered "Vol. XIX. XX. XXVII, octavo portions"